

THE RELATIONSHIP OF PEER COACHING TO THE FREQUENCY OF
USE OF EFFECTIVE INSTRUCTIONAL BEHAVIORS IN
INSERVICE TEACHERS IN THREE SELECTED JUNIOR HIGH SCHOOLS

By

HOLLACE HAMAKER CRAVEN

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

1989

ACKNOWLEDGEMENTS

I would like to thank those people who helped in the completion of this project and supported me in the process. My committee chairperson, Dr. William Hedges, was helpful for his editing and suggestions of additional resources. Dr. Craig Wood, Dr. James Algina, and Dr. Forrest Parkay all insisted on accuracy of expression and careful organization. I appreciate their help.

For the people who worked on the "Make a Difference" project, my thanks go to Dr. Susan Wilkinson and Dr. Carole Walker for their advice and cooperation in completing the study. Dr. Homer Coker cheerfully advised in the scoring. Dr. Mel McCane provided valuable assistance in the data analyses.

I gratefully thank my husband, Michael, and my four children, Lacey, Brent, Blair, and Libby, for their independence and mine.

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Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment
of the Requirements for the Degree of Doctor of Philosophy

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Hollace Hamaker Craven

December 1989

Chairman: William D. Hedges
Major Department: Educational Leadership

The purpose of this study was to determine if a relationship existed between the presence of a peer coach and the increased use of 18 teaching behaviors tied to student achievement. A second question was to determine if the level of administrative support for the inservice training was related to increased use of the 18 teaching behaviors.

Training in peer coaching was designed and presented by the researcher. Twenty-seven teachers were observed before the training and after the completion of training and practice sessions. The teachers were grouped by the level of administrative support received and whether peer coaching was done. Group 4 had peer coaching and high administrative support, group 3 had peer coaching and moderate administrative support, group 2 had no peer coaching and moderate administrative support, and group 1

had no training, peer coaching, or administrative support for increase in use of the 18 behaviors.

Teachers were observed using the modified COKER, a low inference observation instrument. The reliability of the instrument was tested. Cronbach alpha coefficients were found for the scoring keys of the 18 behaviors, 10 of which were found to be reliable measures of the behaviors.

Analyses of covariance were conducted initially, but covariates on only two behaviors were related to the dependent variable. Therefore, an analysis of variance was conducted on the posttraining scores of the four teacher groups, followed by a Bonferroni procedure. The pattern of pretraining mean scores exhibited a trend toward higher scores for groups 1, 2, and 3 than for group 4. Significant group differences were found on different behaviors for pretraining and posttraining observations. In pairwise comparisons high administrative support was shown as a single element in significant differences favoring group 4 over group 3. Peer coaching with high administrative support was found as a combination of factors that produced significant differences favoring group 4 over all others.

CHAPTER I INTRODUCTION

The Problem

The relationship of a peer coach to the number of effective teaching behaviors used by inservice teachers in classroom instruction in three urban junior high schools was investigated in this study. Inservice teachers who were trained in the use of a low-inference classroom observation instrument and a variety of effective teacher behaviors that affect student achievement were observed before they received this training and after they had time to model and practice these behaviors. The question under investigation was whether or not teachers would use more of the effective behaviors more frequently with the aid of a peer coach than teachers who simply received training in the methods and observation instruments or teachers who received no training but knew they would be observed on their teaching behaviors.

The faculty of three schools participated in the investigation. One of the schools selected for study had complete administrative support; full administrator and teacher involvement in the learning about effective

teaching behaviors and low-inference observation instruments; and all teachers agreed to work together in pairs to model, practice, observe, and be observed using these new techniques. Administrators of the second school partially supported the inservice activities. Teachers were modestly encouraged to work in peer coaching pairs to model, practice, observe, and give feedback. Thirty-seven teachers of 72 in the school participated in the inservice activities and 6 of these teachers worked in three coaching pairs. Administrators from the third school chose not to participate in the inservice training and coaching at all, but did agree to allow an observer to code classroom teaching behaviors for 9 of 67 teachers during the middle and end of the 1985-86 school year.

The specific questions addressed in this study were the following:

1. Is there a relationship between the presence of a peer coach in a structured planning, observation, and feedback role and the frequency of use of effective teaching behaviors taught and modeled in inservice workshops?
2. Does the level of administrative support for the inservice workshops relate to the frequency of classroom use of these effective behaviors?

The Rationale for the Study

This study was conducted to determine if a strategy could be found to encourage classroom teachers to utilize information learned in inservice workshops in their classroom teaching. Frequently information learned in workshops is enthusiastically received by teachers but less frequently implemented in the classroom. This discrepancy may occur in part because the transfer from inservice activity to classroom behavior is too difficult a task for a teacher to complete without assistance. There is some evidence to suggest that a peer coaching strategy may encourage the transfer and help the teacher maintain the skills learned in inservice workshops (Showers, 1984a). Modeling and practice of teaching behaviors to see how they work and if they are effective in a particular classroom addresses an adult learning need to see the result of an effort before committing to it. Focused cueing of specific behaviors in the observation instrument provides teachers a practical clue to behaviors that are expected in the classroom. Training in the use of an instrument that notes teaching behaviors gives teachers an expectation of what they should be doing and what it looks like in practice. All of these are strategies to encourage teachers to be continuous learners and instruments of change for their schools.

Results of this study serve to bridge the gap between reports of anecdotal support for peer coaching as a strategy to enhance teacher behavior change and the more rigorously-structured research studies on teacher change to which most school district personnel do not have access.

Theory Base

The design of the study rests on two theories supported in the literature, but with less research-based support. First, learning by adults, in this case inservice teachers, is assumed to have a different motivation base than student learning and, accordingly, can make use of different experiences than in the teaching of children (Arends, 1983; Guskey, 1985; Knowles, 1984). Second, peer coaching with observation and feedback and using a low-inference observation instrument can focus teacher attention on expected teacher behaviors. Peer coaching can then provide a trial and error means of practice and learning that is divorced from formal job evaluation (Baker, 1983; Blair, 1984; Joyce & Showers, 1982; Sparks, 1986; Talmadge, Pascarella, & Ford, 1984; Tenenbaum, 1986; Smylie, 1988; Walberg & Genova, 1982). Subsidiary features necessary to operating a peer coaching program, that is, administrative support and training in use of an observation instrument, are addressed in the literature review to determine the extent of their

relationship to behavior change in the direction of effective teaching behaviors by means of peer coaching.

The need for this study also rests on practical grounds. Showers (1984) and Sparks (1986) conducted large university-designed projects to determine the relationship of peer coaching to transfer of training and the increase in use of effective behaviors using strict controls and multiple staff to manage the information. Most schools or school districts do not have those resources to provide training and follow-up evaluation of use of the information. This project on peer coaching, as part of a larger school district inservice plan, was designed and delivered, in part, by a classroom teacher. Data were collected by that teacher, a second classroom teacher, and a school vice principal. Time to deliver the inservice activity was arranged cooperatively with individual principals. Costs of materials were minimal. Computer time was available. In short, school-based staff did most of the work without unacceptable disruption of school routine. Data-based information on teacher change in normal classrooms was collected under time and money restraints with which most school districts operate. This study should add to the data base as a bridge between anecdotal information on teacher change and research studies on causes of change.

Inservice Training

The typical means of introducing new techniques, strategies, or content to inservice teachers is through inservice workshops. Since these workshops are planned and presented to give the greatest amount of information to the greatest number of people in the shortest time possible at the least possible cost, workshops often neglect the specific and personal relevance that a teacher needs in order to be willing to incorporate the knowledge gained in the workshop into his or her teaching repertoire (Good & Brophy, 1978; Pambookian, 1976). Workshop effectiveness is normally measured by participant satisfaction with the presentation. Since the assumption is that inservice activity is conducted with the intention of changing teacher behavior and influencing student achievement, it seems appropriate to measure inservice effectiveness in terms of teacher behavior change in the direction of knowledge utilization of the inservice information or by measuring the increases in achievement for students of those teachers who attended inservice. In this study only teacher behavior change and administrative support to accomplish that change were investigated. The inservice activities are described. The predictor variable introduced as the catalyst to stimulate the use of inservice information was a peer coach. The criterion variable was the inservice information and skills. The

influence of a peer coach on the rate of knowledge utilization for inservice teacher pairs receiving the same inservice workshop information was investigated.

Inservice education, through its general focus, has been perceived as weak (Joyce, Howey, & Yarger, 1976). This pyramid approach to teaching adults has the experts (generally university personnel or theorists) lecturing to teachers on theory or practice. Edelfeldt (1977) believed that there is no framework for providing inservice workshops and that teaching, research, and adult learning theory need to be addressed when providing that framework. Agne and Ducharme (1977) emphasized that universities are the appropriate managers of inservice education, since schools cannot do inservice activities due to a lack of resources for the task. While stating that universities and schools are insensitive to each other in their collaboration on inservice education, the authors failed to see the insensitivity of their own statement concerning the ability of teachers to be responsible for their own learning. In articles advocating school district control of the inservice function, the need for great outlays of time and money to first train the trainers has been stressed. For whatever reasons, probably difficulty and expense, neither the school district nor the university as a manager of inservice education has tried to validate its claim for inservice control by showing increased student

achievement or improved teacher instruction as a result of its efforts. If one of these two results is not the point of inservice education, then the time and money spent to provide inservice education are not justified.

Other Factors in Teacher Change

Social interaction between and among teachers provides a socially and culturally supportive basis for continuous learning (Good & Brophy, 1978; Runkel, Schmuck, Arends, & Francisco, 1979). The school becomes a learning community for teachers as well as students. The classroom isolates a teacher from the influence of other teachers for the majority of working hours. Structured teacher interaction directed toward school-wide professional improvement could provide school-based on-the-job training (Little, 1982) which would not be viewed as a job evaluation or a waste of teaching time. When teachers see the implications of inservice information to their own jobs, they are more likely to try to use that information in structuring their own lessons (Knowles, 1984; Walberg & Genova, 1982).

Several authors have written on a perceivable common attitude within a school. Called by various names, environment, school culture, ethos (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979; Deal & Kennedy, 1983; Goodlad, 1975; Moos, 1979; Runkel et.al., 1979; Walberg & Genova, 1982), this attitude can influence

learning outcomes (Brookover et al., 1979; Rutter, 1979), and evolves over time in the workplace among the participants through action (Baldridge & Deal, 1983).

Several features of teacher behavior change have been noted in the literature. The cycle of observations, feedback, goal setting, and practice has been mentioned by Feldon and Duncan (1978) and Joyce and Showers (1980). The availability of a trusted other, a colleague, peer, or trainer is needed to provide half of the above-mentioned cycle (Good & Brophy, 1978). Traditionally, an evaluator, a principal or other administrator has done the observing and has provided the feedback. This implies an unequal status, or power play in what should be a cooperative, tension-free learning process. Since there is no immediate intrinsic or extrinsic reward for the inservice teacher, his or her reward must be the long-range vision of improved student learning.

Teachers will not be tempted to seek improvement, however, if there is fear of loss of self-esteem among fellow teachers or before one's principal. There is less willingness to experiment and take a chance on failure. This unequal status power differential may be one reason that several researchers have found that teachers are not enthusiastic seekers of knowledge (Runkel et al., 1979), nor do they seek the autonomy of the classroom from any sense of need for independence (Fagan & Walter, 1982).

When teachers feel they are included in the process of influencing, changing, or controlling, they exhibit increased responsibility for their own progress. The point of readiness for change in teaching behaviors, the need to learn, also must be reached for teachers to be willing to work for change (Knowles, 1984). Change can occur when teachers are ready to learn, when administrative support for learning is provided, and when the focus of learning is that teacher's instructional weakness (McNeil & Popham, 1973; Sergiovanni & Starratt, 1979).

Despite evidence to show teachers as unenthusiastic seekers of knowledge (Runkel et al., 1979), Arends (1983) found that teachers continue to learn as inservice professionals at as high a rate and in a more structured and formal manner than physicians. While these statements seem contradictory, state law and school system requirements for updating of training may have an impact on the individual teacher's need to seek additional training. Enthusiasm for additional training may be lacking, but the need to keep one's job or teaching certificate may require the continuation of learning in spite of individual lack of motivation. In cases where a mentor or colleague partner is available, comparisons of nurses, policemen, and teachers vary little in vital statistics (Fagan & Walter, 1982). Unfortunately,

teachers did not exhibit increased tact, honesty, patience, persistence, or independence as a result of colleagues working in pairs, as did both nurses and policemen.

What factors motivate teachers most strongly to seek continued training in their profession? Incentives often listed are release time, college credit, certification, personal satisfaction, compulsory attendance, and extra pay for the time spent (Swanson, 1968). Peer coaching capitalizes on the incentive of personal satisfaction, minimizes the time spent away from teaching, and uses inservice strategies to build school culture and cohesiveness. In addition, peer coaching offers teachers their own initiative in continuous learning opportunities that do not threaten their autonomy and self-esteem, but do offer knowledge acquisition, observation, feedback, a modeling process for learning, practice, and use of knowledge gained (Showers, 1984a).

Limitations

The study was conducted in a large urban school district. Both the teacher core and the student core are virtually identical in racial makeup. Although the individual teachers were randomly chosen from the larger teacher population of three junior high schools (grades 8-9), administrators in all three schools agreed to the observations, and administrators in two schools agreed to

participate in the initial knowledge acquisition phase. The subject areas taught by the teachers were English, band, art, home economics, social studies, foreign language, algebra, biology, reading, shop, and health. Members of the experimental group agreed to the extra effort of being coaches, planning, observing, and giving feedback to their peer partner. Generalizability of results is limited to the school populations involved due to the agreement to participate in the extra work and level of effort within each school, which may have influenced teachers to participate.

Two 10-minute observations per teacher were done during the same class period for the preobservations and also for the postobservations. The variability of teaching behaviors over different segments of a lesson is assumed. Therefore, each observation is assumed to be a percentage of each teacher's potential repertoire of teaching behavior. Although the schools agreed to participate in the study, the classroom observations were unannounced and teachers within each school were selected by random means. Therefore, the behaviors that were observed may be assumed to be representative of all the teaching behaviors of the particular teacher. This consideration, however, needs to be made and considered an assumption and limitation in later discussion of conclusions to be drawn. In addition, the relationship of

coaching and the level of administrative support are intertwined in the study design and may not be considered separately in any conclusions to be drawn.

Definitions

Peer coaches are fellow teachers in the same school, who agree to work together to model and practice in the classroom new behaviors deemed effective by the research (Coker & Coker, 1982a; Medley, 1977) and presented in inservice workshops.

Knowledge utilization, for purposes of the study, is measurable behavior change charted on a low-inference observation instrument in the direction with or in terms of the specific effective behaviors identified in the workshops and listed in the training in use of the low-inference observation instrument.

The low-inference observation instrument is a modified Classroom Observation Keyed to Effectiveness Research (Coker) instrument used for the purpose of this study with permission of the senior developer, Homer Coker. The modified COKER contains 18 positive teacher behaviors and all the original student cells, but is coded as a tally sheet, not as a single occurrence. Methodology, teacher affect and control are keyed, however, only once. The term, low inference, is used to mean observer value judgment is not needed to code observed behaviors. The observer codes only if a behavior

occurs or not, and how often in a 10-minute observation period. The instrument was used for two 10-minute observations before the inservice training and for two 10-minute observations after the inservice training, so that it was used as a repeated measure.

Full participation is acceptance of the inservice as a whole school project, in which all professional staff attended workshops, all teachers agreed to practice new skills, and all agreed to observe and be observed by peers and received feedback on their instruction. The school administrators attended all the inservice instruction and trained all of their school's teachers. All the school's teachers attended all of the inservice and all participated in the peer coaching component. Administrators helped teachers observe each other by covering classes when needed.

Partial participation is participation by some of the teachers in the inservice, individual teacher motivation to practice new behaviors, and several teacher pairs who agreed to work formally as peer coaches. The school administrators made the inservice available to teachers but, did not require participation. Administrators attended some of the inservice workshops, encouraged teachers to attend, and allowed teachers to observe each other for the peer coaching component. In terms of numbers, about 50% of the staff participated in the

inservice, but less than 10% of the staff did the peer coaching component.

No participation is acceptance of an observer in the school to code teacher instructional behaviors, total administrator and teacher nonparticipation in inservice, no teacher practice of new skills, and no agreement to work in coaching pairs.

Assumptions

The following assumptions have been made:

1. Individual observations of teaching behaviors identify a portion of the total teaching repertoire.

2. The difference in time of data collection for the three schools did not affect the outcomes.

3. It is impossible to totally separate the relationship of peer coaching and the level of administrative support to explain an increase in effective teaching behavior. The two factors are intertwined in the study design, but treated as separate entities statistically.

4. The random selection of teachers from within self-selected schools will be representative of the school district teacher population in terms of knowledge of teaching.

Organization

This dissertation is organized into five chapters. In the first chapter, the problem and rationale for the

study are presented. The second chapter contains a review of the literature which was focused upon teachers as peer coaches, inservice education, administrative support, and use of low-inference observation instruments. In the third chapter, the process of the study and the evaluation techniques used are presented. The fourth chapter contains a presentation of the data in statistical and narrative form. In the final chapter, the application of any conclusions drawn from the data and the generalizability of that information are presented.

CHAPTER II REVIEW OF THE LITERATURE

Introduction

This study was an investigation of the peer coach as a predictor variable in the learning process of inservice teachers to determine if the aid of a peer coach in a structured learning, modeling, observation, and feedback cycle is related to the frequency of teacher use in the classroom of effective behaviors taught in inservice workshops. Part of the role of the peer coach is predicated on the assumption that effective teaching behaviors can be identified. However, any single teaching behavior is not going to be uniformly effective for all teachers, with all groups, in all content areas, at all times. Context effects of the teaching-learning process can make our information on effective teaching behaviors more precise if we look at differential effects on more precisely defined groups of students (Soar & Soar, 1983). Good and Grouws (1977) identified effectiveness with (a) student initiated behavior, (b) whole class instruction, (c) general clarity of instruction, (d) nonevaluative relaxed learning environment that is task focused, (e)

high achievement expectation, and (f) few behavior disorders.

Daily classroom instruction is one of the least supervised aspects of education. To improve student achievement, daily classroom instruction seems the logical place to start looking at what happens in teaching, what the effects of the teaching are, and how teaching can be improved to provide a consistently acceptable result in terms of student achievement. The time and money spent on educational improvement should focus on facets of classroom instruction, not on any one universal formula to improve all education in all classrooms. The diversity of subject matter; school climate; teacher motivation, preparation, and skill; student motivation; and learning style all contribute to a varied educational environment that allows and adapts any change to fit its peculiar needs. Peer coaching is addressed here as a structure of training and practice that allows teachers and schools to work on whatever strategies or skills they deem worth the effort to implement in the classroom.

Mentoring might seem to be a related field of inquiry that may be compared to peer coaching in public schools. In fact, some of the studies of peer coaches really could appropriately be named mentors projects. But mentors generally are people of greater status than the people whom they mentor, often graduate professors in

universities or higher status executives in business who help people of lower status. The difference in status and power sets up a very different psychological framework for learning. The emotional effects of being a mentor--emotional satisfaction, renewed creativity, and enhancing of reputation (Busch, 1985)--are similar to the emotional effects derived from peer coaching, but there is no peer relationship involved, and the protege has no hope in teaching or early promotion in the business or a good recommendation from a famous name as a result of the pairing. Erkut and Mokros (1984) saw mentors as having the characteristics of guide, teacher sponsor, exemplar, or counselor giving moral support and helping without judging. These activities also describe a peer coach. Fagan and Walter (1982) conducted a comparative study of mentoring among teachers, nurses, and policemen, and found the emotional satisfaction mentioned in Busch. The purpose of mentoring is an expectation of help in promotion. The difference in status is necessary, and the focus of the help is not personal improvement in teaching methods. For these reasons, mentoring is not a good corollary topic to coaching.

The specific area of concentration in this study, the peer coach, is approached in two ways. Research in peer coaching within the last 10 years is directly addressed as supportive evidence. Research in adult learning theory,

staff development through inservice education, and administrative support are addressed as part of the school change process needed to implement a peer coaching project. In the order of presentation needed for a peer coaching project to be implemented, adult learning theory and then staff development through inservice training are addressed first, followed by peer coaching, the theory and practice thereof, and finally the administrative support needed to make the process work in schools. Additional support for the use of low-inference observation instruments and training in use of an instrument is given to support the choice of the observation tool used in this project.

Adult Learning Theory

Knowles (1984) found adult learners to be different from children in their motivations to learn. Research in the learning of children and animals is not particularly appropriate for the adult learner. Adult motives for learning and the time needed to assimilate knowledge for use are not the same as those of a child. Adults need to know why they need to learn before they invest the energy to learn. Adult self-concept demands that the adult learner be seen as self-directing, but experience tells the adult learner that as a child all he had to be was a passive receptor of information and knowledge. In teaching adults, many make the mistake of trying to treat

adult learners in the same way as dependent child learners. Adults expect learning to be easy for them, since they are more experienced than children, but they resent being required to learn like children. Adults often avoid learning for this reason.

Adults bring volumes of experience to learning. Presentation of material to be learned without regard to the learner is a waste of a learning resource. Knowles (1984) addressed the richest resources of the adult learner. He stated that experiential techniques are "techniques that tap into the experience of the learners such as group discussion, simulation exercises, problem solving activities, case method, and laboratory method . . . also, greater emphasis on peer-helping techniques" (p. 55).

Readiness to learn is also important. Guskey (1985) found that teachers need to see the effect of instruction on student learning and achievement before they will value and accept that change. Focusing attention on areas of need or modeling superior performance are ways to get adults to address change. Motivation to learn in adults is blocked by barriers of limited time and unwillingness to participate in someone else's ideas of what they need to know (Knowles, 1984). The ability to use what they learn in real-life situations is a final crucial

characteristic to address in leading adults to want to learn.

Main (1985) found that teachers may claim to operate at a higher cognitive level than their students when in a learning situation based on their experience in learning in their own fields, but a significant portion of adults do not operate on a formal level of thinking in the absence of concrete examples. Thus, outside of their personal areas of study, teachers in Main's experience have the same range of cognitive skills as their students. Adult learning should not assume a high cognitive level. Guided opportunities to practice new concepts may still be needed for the adult learner. Main also looked at learning style differences as avenues to address and make inservice activities more useful to the adult learner. Wood and Thompson (1980) suggested aiding adult learners by learner sense of control of content and method, allowing choices to address learner differences, practice of new skills in actual and simulated situations, one-to-one relationships and group learning settings, self-learning, and learning from peers. The latter choices are available to children as learners, but the former conditions are particularly appropriate for adult learners.

Staff Development Through Inservice Education

Several researchers (Joyce, Howey & Yarger, 1976; Wood & Thompson, 1980) addressed inservice education as irrelevant and ineffective and inservice education programs as weak, impoverished, and relative failures. Gallegas (1979) found no thought given to long-term effects of inservice education, nor any input or discussion of needs and issues. This may be one reason that teachers are not avid seekers of knowledge about improvement of classroom instruction because they do not want to learn what someone else thinks they need to know. The learning process is not set up to take advantage of their adult experience, or teachers cannot see an application of the information to their classes. Researching topics and sharing experiences and materials are rare activities for teachers working in the same school (Walberg & Genova, 1982). Joyce, Showers, and Bennett (1987) found teachers to be eager learners when they could see the benefit of the training for their students. Teachers resist change unless they judge the improvements themselves (Guskey, 1985) and can control and adapt the change. School improvement done cooperatively by teachers would be more likely to bring change (Runkel et al., 1979).

Farris and Fluck (1986) found that schools do not provide adequate conditions to train employees. Learning

modes are ignored in order to reach masses of people. Administrators select inservice activities based on their perceptions of teacher needs. For those teachers who are expert in the topics chosen, or those who are totally ignorant of the topic, the time spent on inappropriate inservice training is frustrating.

Farris and Fluck recommended that inservice activity be accountable to the school district and also to the individual teacher. Teachers receiving individually-designed inservice workshops are responsible for passing on what they learn to others, while the school district is responsible for providing access to a variety of professional growth programs to its teachers. Steps in such an inservice program would be the commitment of teachers and administrators, a committee of both to write goals for school improvement, prioritizing of goals, and allowing each teacher to choose his or her role in the school's goals, and access to a variety of inservice delivery modes. The needs of this type of program are time, open communication, and money. Contrary evidence for individually-focused inservice activity was found by Corwin and Edelfeldt (1977) who stated that individually-focused inservice had no impact on change in schools or in those teachers' peers. They did find that coordination of the institutional and individual needs was important to inservice success and school change. No clear format of

inservice structure is to be highlighted by the studies surveyed.

Neil (1985) listed five reasons for the failure of inservice education to contribute to school improvement. These are (a) an oversimplification of the inservice process in which a one shot fix to schooling problems is proposed; (b) social ambiguities in the school culture leave too many cross purposes which are not cleared up; (c) the difficulty in galvanizing teacher commitment results in no clear sense of purpose; (d) universities try to exert normative influence in inservice activity by controlling quality, quantity, timing, and location of the inservice program; and (e) the lack of evaluation fails to pull the whole effort into focus.

One cherished belief of inservice activities that course credit, compensation time, and stipends are motivators for teachers to accept inservice was found by Howey and Gardner (1983) not to be highly relevant. The incentive to complete inservice training found to be most effective was release from teaching duties. Fullan (1978) and Holly and Blackman (1981) shared ideas on what must change in institutional education for school improvement to succeed. Fullan stated that group organization, materials, behavior roles, the level of knowledge and understanding, and the value commitment of participants must change for school improvement to move forward. Holly

and Blackman found that commitment to participate in shared goals; willingness to develop trust and explore their tasks together; willingness to start to build on experience and interest by protecting and expanding individual unique qualities while encouraging active practice of the new; developing a supportive and flexible organization with follow-up and evaluation to their tasks; and allowing the time for reflection, absorption, and application of the new skills were parts of a change process that worked in schools.

Holly and Blackman (1981) and Harris (1989) urged that inservice programs provide professional growth, not remedial education for substandard schools or teachers. Harris found staff development to be historically reactive, not proactive. The growth of all employees was subordinated to the remedial needs of a few. Harris urged the acceptance of assumptions that people can learn on the job, that appropriate learning gives satisfaction, and that feedback on one's own behavior is needed to make use of the learning experience. Some learning needs direct intervention and some does not. Individuals want to learn some things at some times and under some conditions, but not all people at all times under all conditions.

Individuals will learn in states of active participation or under stress. Burden (1983) observed that teachers have different skills, knowledge, and

behaviors at different times in their careers; therefore, an inservice model that addressed their strengths at these different times might be successful. A teacher's first year is focused on survival. He or she is subject-centered, has little confidence, and will not experiment. The teacher in years two through four of his or her career is learning about planning, implementation, children, curriculum, and methods of teaching, and has some degree of self-confidence. The mature teacher is child-centered, secure, and willing to try new teaching methods. Knowing the professional development stages of a teacher can help an administrator anticipate the teacher's needs and provide opportunities the teacher would be open to exploring. A first-year teacher would participate in directive inservice activities. A second to fourth year teacher will appreciate collaborative inservice programs. The mature teacher will prefer a nondirective professional development program. Harris' assumptions seem to be incorporated into Burden's practice.

Knowing how to address learning with teachers and knowing the school climate, planners can adapt inservice features to increase teacher participation and adaptation of the knowledge gained. Time and opportunity to practice the skills learned or modeled in workshops give teachers control and allows them to judge the practices themselves as they practice and use a new technique. Teachers who

think about and judge instructional practices are engaged in reflective teaching. The teacher who is aware of the impact of his or her teaching actions has deliberate control of his or her actions (Russell & Spafford, 1986). Discussion with other teachers on these teaching actions and working through a cycle of learning, practicing, observing, and giving feedback can enhance self-confidence. Watching other practitioners and learning as they reflect on their own teaching led Cruikshank and Applegate (1981) to these conclusions.

A number of authors pointed to teacher efficacy as a critical area in effecting change. Poole and Okefor (1989) linked efficacy to frequent task-relevant student teacher interactions, and this to higher levels of implementation of curricular change. Smylie (1988), through path analysis, suggested that individual teacher change is a direct function of personal teaching efficacy; the teacher judges effectiveness, then practices and uses information or knowledge or strategies that increase effectiveness. Sparks (1988), conducting research on change, found a sequence of activity that was more likely to result in individual change. Teachers who see a new practice, judge it, and value it are more likely to practice and use it. Philosophical receptivity to a new practice may be a determiner of future use. Dissolving resistance may need to be an early part of the inservice

training if teacher input and cooperation are not part of the planning for inservice activity.

Small groups of teachers who were willing to try new strategies and examine their teaching performance gained in confidence about their teaching (Sparks, 1988). Once involved with the support group of teachers given to experimenting with their teaching behaviors, teachers became more confident of their ability to improve their classes and had higher expectations for themselves and their students. Once begun, the cycle of observing, experimenting, and discussing seemed to fuel itself and its members to more teacher learning, practice, and change.

Porter and Brophy (1988) listed characteristics of good teachers that restated the characteristics of effective teacher learning. Good teachers promote learning, communicate expectations, provide strategies by which children can monitor their own learning, are reflective semiautonomous professionals, and give feedback to students on their learning.

In general, the training of teachers makes no commitment to long-term growth in independent entrepreneurial work (Wildman & Niles, 1987). Professional growth needs autonomy, a chance to direct self-growth. Peters and Waterman (1982) documented individual experimentation in successful companies and

also in universities. Technological growth often comes from university-level research. However, teachers are expected to maintain the status quo. Wildman and Niles saw the need for collaboration to expand ideas with a source of intellectual stimulation. Teachers can break the isolation of the classroom and find a forum to test new ideas. A support group designed to provide stimulation and to give emotional support for experimentation and change can form and reform based on individual need. This type of collaboration is not cost effective but is necessary for learning to be self-directed, stimulating, and uncertain.

Observation

Teacher control of the direction of the change he or she must make preserves some teacher autonomy. Teachers perceptions of control over their own behaviors are enhanced by frequent observations. Natriello (1984) hypothesized that frequent observations and teacher perceptions of effectiveness would be a curvilinear relationship; however, his data do not confirm this. The results suggested that the more frequent the observations, the greater the perception of teacher effectiveness. It was further suggested that teachers need to feel a sense of control in their classroom behavior and that they are positively affected by observation. This supports observation and feedback as elements that enhance

instructional change, with additional researchers lending evidence to the addition of a peer coach to provide the observation and feedback parts of the cycle. Blair (1984) found that teachers trained in the use of a low-inference observation instrument and involved in peer observation practiced effective teaching behaviors cued in the observation more frequently than did teachers given training in the use of an observation instrument but not participating in the peer observation component. In fact, this control group demonstrated teaching behaviors focused in the direction of ineffective instruction.

The what and where of inservice education were the questions addressed in a three-state project to examine inservice practices conducted by Vargher and Joyce (1977). On site, hands-on inservice activities during the school day at the home school or one nearby was the inservice workshop for which teachers reported the highest rates of satisfaction. Use of community resources (that is, the community, local university, and school employees) brought these groups closer together and led other diverse community groups to commit to teacher inservice programs. These studies by Vargher and Joyce support two premises; first, that the more available the training, the more likely teachers will take advantage of it; second, local resources seem sufficient to the training tasks and are good motivators for education within a community. In a

later study, Joyce, Showers, and Bennett (1987) found proximity not to be a necessary element to teachers seeking new information, but availability of inservice education in the school building may reduce barriers to the use of new information.

After completing a meta analysis, Wade (1985) reported factors that make a difference in inservice education. Effective inservice programs should be measured in terms of behavior change in the teacher and in the student, but is most often reported as participant satisfaction. Wade found that inservice workshops increase teacher learning in a highly effective manner, but change behavior only moderately, and affect achievement results of the students of teacher participants only mildly. The techniques found most effective by Wade's analysis were classroom observation, micro-teaching, audiovisual feedback, and practice. Coaching, modeling, and mutual assistance were moderately effective means of knowledge utilization and behavior change. In response to Wade, Sparks (1985) found coaching more effective than Wade reported. Sparks reported Wade's inservice strategy findings and noted that the work was best done with a colleague or in a small group. Felden and Duncan (1978) used a combination of variables in a cycle of goal setting, inservice in effective

instructional behaviors, and systematic observation of peers to promote instructional change.

Considerations for Inservice Training and Adult Learning

The elements of inservice education that need to be considered in inservice development are (a) the adult learner's need for preservation of self-esteem; (b) the adult learner's need for self-direction in professional growth; (c) the teacher's need to see and judge the usefulness of a particular strategy; (d) the experience resources that teachers have to share; (e) the commitment to long-term growth; (f) the time and freedom to set one's own goals, learn, practice, observe, fail, discuss, give feedback, and support each other; (g) work in small groups or pairs; (h) motivate and stimulate and allow to experiment; and (i) allow teachers to control, adapt, and change as they perceive the need.

The Peer Coach

The use of peer coaches is beginning to appear frequently in the literature. One of the most prolific writers on the subject of peer coaching is Showers (1982, 1984a, 1984b, 1985). She defined the purposes of coaching as the building of a community of teachers who continuously study their craft, have a shared language and common understandings, expand the repertoire of teaching skills, and use peer help. Peer coaching provides the

structure to follow-up training in order to make new skills and strategies a permanent part of one's teaching.

Training, modeling, observation, and feedback are common features identified by writers on peer coaching. But the point of coaching is change in the classroom: selecting of concepts to teach, reorganizing the materials, and cueing students in the ways to respond. Coaching itself is done in the spirit of exploration; it provides a means to learn and perfect teaching strategies; it includes elements of the clinical supervision cycle placed in the hands of teachers who would take responsibility for their own professional growth. Peer coaching can provide long-term supervision of instruction. If school improvement or higher student achievement is a school goal, long-term growth and gain should be expected. Improvement will not be reflected in completion of a two-hour workshop. The application in the classroom of knowledge learned in the workshop is the critical transfer that is aided by peer coaching. Instructional change involves more than an administrative decision that change is needed.

Felden and Duncan (1978) used a combination of variables in a cycle of goal setting, inservice activity on instructional behaviors, and systematic observation to promote instructional change. In many of the projects involving peer coaches, the peer coach was defined in

different ways, and the coaches had different responsibilities. For purposes of this study, a peer coach was not a mentor, a student-to-student peer coach, or an official evaluator. The peer coach was a colleague in teaching who worked in the same building or subject area, had no responsibility for formal evaluation of job performance, and agreed to work cooperatively with a fellow teacher to improve that teacher's instructional skills.

Servatius and Young (1985) called their peer coaches advisors. These teachers were not school based, but were volunteers who were trained in classroom management or mastery learning. At the request of individual teachers, the volunteers served as advisors, gave training, held preobservation conferences, did planning and observations, and gave postobservation feedback. The outcomes reported were that consistent and correct implementation of the training occurred. Anecdotally, a positive feeling of both advisor and advisee in renewing teacher confidence in his or her skills was reported.

Neubert and Bratton (1987) reported on a project in which language arts coordinators team-taught with teachers and acted as coaches to teach new strategies, encourage and support the teachers, and facilitate learning. Although stretching the definition of a coach, the coordinators did observe and give feedback, were available

to the teacher, and felt the need to participate in the teaching to gain credibility with the teachers as classroom teachers, a factor that a peer teacher in the building would not need to address.

Moffett, St. John, and Isken (1987) reported a peer coaching project where beginning teachers were paired with experienced teachers in the school building during their first two years of teaching. Coaches were recruited and trained and paid by receiving either release time or a substitute's pay for extra days. New teachers were given one week's training at the beginning of their school year and worked with a coach, with at least two observation sessions per month. Many of the advantages of coaching were available in this project, but a power or status differential was built in for the purpose of this school district, and coaching was limited to new teachers. However, the coaching process was adapted to local needs.

In 1971, the Salem, New Hampshire, school district began assigning a coach to all new teachers (Zeichner, 1979). Both teachers taught the same subject and had the same planning period for conference time together. The coach provided support but no formal evaluation or assessment. Teachers were trained to use the Flanders Interaction Analysis and to interpret its results. Most teachers reported high satisfaction with the program and a high rate of attainment of its objectives. Again,

elements of a peer coaching cycle were used to the advantage of the teacher for the district's objectives.

In Oklahoma, teacher consultants fulfill the role of experienced teacher mentors for new teachers, but the products of the study match results and terminology of peer coaching projects, i.e., gains in interpersonal communication, collegial relationships, openness to new ideas, nonthreatening learning time in the classroom to perfect new process skills, and modeling. Consultants also gained new ideas in teaching from the teachers they coached and tended to reexamine their own teaching. All of this was a process of teachers learning from other teachers apart from any threat of job evaluation.

Sparks (1986) carried out a three-tiered study of peer coaching for teacher behavior change. Group I received inservice training in effective academic interaction. Group II received the same inservice training and did peer observations, learning to code student-teacher interactions, and Group III had the inservice training and were all coached by the inservice trainer. All three groups were core subject teachers of low-achieving junior high school students. Success was measured by the achievement of a specific number of teaching skills. Group II teachers showed more improvement than did teachers in Groups I and III in the increase in criterion number of new skills. Teachers

reasoned that this higher performance to criterion was due to the peer observation techniques learned that allowed them to analyze their own teaching behaviors. An anecdotal result was heightened trust and self-esteem within Group II.

In the Spencer County, Kentucky, Public Schools peer coaching was used to induce county public school teachers and administrators to handle their own professional development (Rude-Parkins, 1987). The result was a continuous study of the teaching craft, follow-up for the inservice learning of teaching skills, an informal use of the clinical supervision cycle, and common language among teachers learning more about teaching. The strategy used was the verbatim, an observation technique that requires the listing of all teacher actions for a later analysis of what the behavior was, if it was effective and how it was applied in the classroom. Changes in teacher behavior were the increased use of modeling strategies for other teachers to observe and more frequent use of newly learned and practiced learning techniques.

The transfer of the techniques learned in workshops to classroom practice has been the focus of several projects by Showers (1984a). She found that teachers who were coached in the learning and use of new skills transferred the knowledge and maintained the practices months after training. Students of coached teachers in a

second project performed better on a concept attainment measure than students of matched but uncoached teachers. Teachers found that the practice of new skills alone did not ensure the transfer of knowledge from inservice workshop to the classroom. The feedback portion of the observation cycle was a necessity.

In a study of reading instructors, Kurth (1984) found that the coaching component of an inservice project taught teachers to recognize effective behaviors through cueing; she provided one observer to monitor or observe teacher behavior and one to monitor student behavior. Classroom teaching results included increases in student achievement, a decrease in transition time between lessons, and teacher planning time that became more task oriented.

The feedback part of the observation cycle in peer coaching has been reported as being startling and frightening to teachers accustomed to being the sole arbiter of their daily performance. Teachers who experiment and overcome their own ego protection find feedback personally and professionally supportive and affirming (Servatius & Young, 1985). A combination of training in mastery learning and classroom management supported by teacher advisors (coaches) and institutionalized by the school (teachers hired as part-

time coaches) gave experienced teachers the first supportive instructional feedback in their careers.

In a teacher-directed study (Anastas & Ancowitz, 1987), teachers used self-reflection and peer coaching as central themes in a self-improvement project. Teachers videotaped themselves for self-evaluation. They examined their own teaching in depth. When they learned to trust their professional egos to the scrutiny of their colleagues, they shared the videos and discussed techniques, strategies, and improvements. The teachers found that they counteracted burnout, boredom, and isolation by the self-reflection and coaching process and controlled their own professional growth.

Sparks and Bruder (1987) compared two Ann Arbor schools which used peer coaching to encourage experimentation, collegiality, and enhance teaching effectiveness, one school of which had accepted the technique before the study began. Sparks and Bruder found that the training, conference, observation, and feedback cycle seemed to work well for both schools. Observations increased 48%, feedback increased 64%, and teachers advising each other increased 23%. Following the introduction of the training, conference, observation, and feedback cycle, there were more teacher-teacher interactions on teaching improvement, more willingness among teachers to try new ideas, a persistence in

mastering new strategies (an increase of 40%) and student learning was enhanced. Better test grades of their students were reported by 70% of the teacher participants.

In a formal learning environment, the classroom, teachers in Fort Worth's summer lab school trained in peer coaching as a strategy to develop collegiality in their home schools (Leggett & Hoyle, 1987). These teachers were to become the instruments of change by teaching coaching to their peers in the fall. In the city of Chicago, peer tutors were used in formal classrooms to help fellow teachers retrain in the field of mathematics (Duffie & Guida, 1986). Beyond college classroom instruction in mathematics, current math teachers drilled, retaught, and reviewed mathematics principles to new teacher learners. The use of the peer instructors decreased anxiety and significantly increased achievement in Algebra III, Trigonometry, and Analytic Geometry for teachers in the coached group. The observation-feedback cycle was not used in this project, since it was more a traditional classroom learning setting for teachers, but the presence of the peer tutors did help.

Several staff development projects dealt with peer coaching as part of an overall program of improvement. Impact II, a staff development project funded by EXXON Educational Foundation, allowed master teachers to instruct other teachers, and awarded grant funds to

creative teachers to develop and disseminate exemplary programs. The project offered teacher-to-teacher exchange, interschool visits, and funded substitute teachers (Dempsey, 1986). This model has been adopted in New York, Boston, Houston, and Chapel Hill. Mann (1986) reported that the most important asset of Impact II is the network of people that one builds as support. The gains reported by adaptors of Impact II are similar across all sites. The factors of respect, self-esteem, and professional commitment are built into the model. The details of each project may change but the presence of a peer in a structured format remains constant.

The concept of cooperative learning as a classroom practice employed for academic improvement in students showed positive correlations but no significant direct results (Talmadge et al., 1984). A possible avenue of study might be the use of the cooperative learning techniques in teacher learning since teacher-to-teacher, self-directed professional growth is the focus of the peer coaching process. Glatthorn (1987) envisioned peer coaching as an option for cooperative professional development. The same team of teachers used various methods for their own professional development. The results of his study showed peer coaching resulted in teachers transferring training to practice and students

achieving better on model-relevant tests than did students of uncoached teachers.

Joyce and Showers (1980) focused attention on the process of structured feedback between peers and coaches in the observation-feedback cycle. They found unstructured feedback had an uneven effect, but coaching provided a means of repeated structured feedback which aided learning. Showers (1985) carried the argument for coaching in a structured framework further and defined coaching as a means of building community within the school, using shared language, and understanding to learn new skills. She used the training-observation-feedback cycle and added analysis, study, hypothesis forming, and testing to the coaching cycle. Requirements of her study were (a) the inservice trainer is not the coach, (b) the time involved is over three months, and (c) peer coaches know the new skills and have access to other classrooms (release time from their own teaching).

Showers (1985) found that coached teachers generally practiced new strategies more frequently and developed greater skill, used them more frequently, exhibited greater long-term retention of the skill, and were likely to teach new strategies to students so that they would understand the purpose of their expected behaviors. Showers (1985) made a strong delineation between coaching and supervision. She stated that the status differential

involved in supervision does not seem to work productively in the military or in education. A difference in the status of the pair working on a skill tended to make power the focal point, rather than learning. According to Showers (1985), if coaching and evaluation are equated, a lack of creativity occurs. Coaching, on the other hand, provides a safe environment to learn, practice, make mistakes, and perfect teaching behaviors. The status and power questions are minimized, because the coach is a peer. The peer coach serves as a teacher's support system. The process was structured to include training, observation, feedback, and cooperative planning over extended time. Showers added a corollary to the process in stating that her program needed administrative support to succeed. The training and logistics of peer observation did not have as much impact without the planning and support of the building principal.

Informal Peer Coaches

Several researchers have detailed the use of peer coaching and support for groups other than teachers. Smith and Andrews (1987) described training in peer coaching for supervisors and principals with teachers so that the administrators also receive feedback on their roles while going through the clinical supervision cycle with their teachers (principals observing principals, and supervisors observing supervisors, and getting feedback).

Gibble and Lawrence (1987) described principals paired to do teacher observations together in order to get feedback on their conference skills. Levine (1987) wrote of peer support among women in middle management who used each other as resources for their own professional growth and, in effect, created a parallel and redefined "old-boy" network.

Administrative Support

Researchers on effective schools named the role of the principal in such schools as the instructional leader. Clear communication of goals and the understanding by all groups in the school of the instructional focus of the school are important factors in effective schools. If peer coaching is selected as a facet of a school program of instructional improvement, administrative support is crucial at all phases (Showers, 1985). How can administrators foster instructional improvement with peer coaching? Garmston (1987) defined three types of peer coaching as (a) technical coaching, (b) collegial coaching, and (c) challenge coaching. Technical coaching serves to aid the transfer of training, the details of which are best described in the work of Joyce and Showers (1982, 1983). Collegial coaching fine tunes teaching practices, causing teachers to reflect on their own teaching and deciding on self-coaching for continuous growth and receiving help to analyze and interpret data.

Challenge coaching provides a means of resolving a problem by a team of school personnel thereby creating trust, collegiality, and practical improvement in one package. In challenge coaching a small group identifies a persistent problem and/or a desired goal that the entire school can work on together to resolve. All coaching positively affects teacher self-concept, work environment, and professional commitment, but Garmston found that collegial and challenge coaching do a better job than technical coaching. He found that 5 of 12 school norms could be affected by coaching. These are collegiality, experimentation, tangible support, reaching to teaching knowledge bases, and open communication. Administrative support is needed to pick the best model of coaching for the school improvement goal. The school leader should (a) know what must be achieved and what resources are needed to do it, (b) demonstrate the value of improvement by providing the resources, (c) facilitate the structuring of coaching teams, (d) acknowledge the practice and devote staff meetings to coaching topics, (e) set expectations for frequency of observations, and (f) model a willingness to be observed and given feedback. Because of the need to find time for coaching pairs to work together, administrators must be willing to be creative in planning and scheduling to help teachers logistically.

Organizational theory and group dynamics offer support for the peer coach. Little (1982) looked for organizational characteristics conducive to continued learning on the job by classroom teachers. She found that the nature and quality of the assistance was important. Analysis, evaluation, and experimentation were valued at schools deemed effective and successful. Teachers valued and participated in norms of collegiality and continuous improvement. They pursued a greater range of interactions with other teachers. A shared technical language aided in the precision of their discussion. Teachers in more successful schools were confident as observers, partners, and advisors. These schools also saw continuous improvement as a shared task. School improvement was the responsibility of the school staff as partners in learning. A collegial stance to discussing, planning, conducting, analyzing, and evaluating the business of teaching was emphasized.

Low-Inference Observation Instrument

Training in the use of an observation instrument was part of many of the studies of peer coaching previously reported (Blair, 1984). The use of an observation instrument cues teachers to the importance of the effective behaviors listed for observation. Knowledge of the behaviors alone does not seem to improve instructional behavior (Porter & Brophy, 1988; Showers, 1984a, 1984b).

However, cueing teachers to behavior is important.

Tenenbaum (1986) discussed his study of three methods of instruction as (a) cueing/participation--reinforcing/feedback, (b) conventional lecture--practice instruction, and (c) mastery learning in algebra and science. An achievement pretest was given and a summative achievement posttest. For both rote memory and higher thinking analysis skills in all classes, Tenenbaum found the cueing/participation--reinforcing/feedback method more efficient in terms of student achievement. He also found a very low relationship between prior student achievement and final student achievement in the cueing/participation--reinforcing/feedback and the mastery learning groups.

The structure of the observation, feedback, goal setting cycle ensures the utilization of knowledge gained in inservice workshops is evaluated by its use in classrooms. Koziol and Burns (1986) found that teacher self-report data can become a valid information source if a focused instrument used repeatedly cues the teacher to appropriate behaviors. This finding in the Koziol and Burns study supported the idea that teacher training in the use of an observation instrument serves the purpose of cueing the teacher to effective classroom behaviors, as well as being the instrument for the peer coach to use when observing. The process of observing with a known instrument enhances recall and the use of those behaviors

by the teachers trained to use the instrument. In this study student observations and teacher's self-reports in 27 teaching practices were reported to reach a kappa coefficient of .70 or better and four practices showed a coefficient with $p < .01$ to .001. Observer and teacher self-reports have been compared on specific behaviors and found to have correlation on 54-69% of the items checked (Newfield, 1980). Natriello (1984) also seemed to point out that cueing by frequent observation with a known observation instrument reminds the teacher of the effective behaviors for more frequent use.

Freiberg and Waxman (1988) found, in tests of reliability of feedback from various sources, that students and teachers trained in Flanders Interaction Analysis and Stallings Observation System gave reliable feedback much in agreement across three different groups. Pupil reports, teacher observers, and self-analysis by audio and videotape showed very similar perceptions of teacher practice. The reliability of the perceptions encouraged teachers to reflect on their craft and made teachers less dependent on a single evaluator's feedback on that teacher's skills in the classroom.

Anecdotal Support for Peer Coaching

There are additional arguments that support peer coaches as an inservice tool. Peer coaching costs little more money than an occasional substitute or consultant for

training and provides long-term follow-up to inservice workshops. Coaches are available to each other every working day; the inservice is at the school building level. Peer coaching is a means of group or community building that can benefit the whole school. The opportunity for practice and modeling is ongoing; it is part of the daily teaching-learning process. The availability of support within the school, the building-level control, the focus on improvement of teaching, the self-direction of professional growth, the educational enhancement of school climate, and the ongoing nature of the process should be powerful incentives to the school principal. The negative side of an argument against peer coaching is that staff must overcome the fear of being observed by fellow teachers, teachers must learn to trust other teachers, and principals need to take an active role in promoting and providing for instructional improvement. Peer coaching can be a successful ingredient in on-the-job learning, the process appeals to the self-directed adult learner and almost all of the resources needed are available in each school building to begin a process of instructional improvement and change.

Summary

To make use of information learned in inservice workshops, teachers need help beyond the receipt of the information. How the information is presented to the

adult learner is a critical beginning to the adult learner's acceptance of the information. The critical issue for teachers is whether or not the information or skill will be useful in the classroom. If inservice education can be structured to allow a teacher some voice in the decision on skills to be learned and allows a teacher to practice a new skill in his or her own setting, the likelihood of using the new information is enhanced.

Assistance is needed to provide a structure for continual teacher growth and learning, but it does not have to be help from outside sources. People within each school building have experience and training that can be shared, if professional staff are willing to try. The aim of each school is to educate children; thus teachers share a common goal. If they can agree to share a means of reaching that goal by sharing their time and effort to learn new skills, the school would benefit from the shared expertise. Deciding on one's own learning goals, learning new skills, having time to practice them, receiving feedback from a concerned peer and not a supervisor making a judgment, should encourage teachers to try new skills and teaching behaviors without fear of failure. A peer coach combined with inservice education provides a formal structure for experimentation while learning on the job.

Administrative support for peer coaching as on-the-job training is critical to its success. Providing

teachers with the chance to be responsible for their own professional growth requires an administrator to let go of a part of his or her control of the school. Allowing the flexibility for teachers to meet with other teachers frequently to conference, observe, and provide feedback is an exercise in creative problem solving that can result in a shared understanding of the tasks of the school.

The selection of a low-inference observation instrument can exclude as much judgment as possible from the observation and allow feedback that is objective in nature and related exclusively to the teaching behaviors designated as effective. For the present study the modified COKER fit that need, was not difficult to learn, and was easy to code.

Focus on the behaviors on the low-inference observation instrument cues the teachers to behaviors that are effective and reminds them of what was learned in the inservice workshop when coding and being observed. That frequent reminder may facilitate retention of the information for longer periods of time than uncued teaching information or skills.

It is assumed that teachers have different skills and different personal agendas for learning on the job. The combination of teacher decisions on long-term professional goals, inservice workshops for the presenting of information, and peer coaching to encourage the transfer

of inservice information to classroom practice is a structure for long-term in-house professional growth that has potential for marked school improvement in student achievement and school climate for teachers.

CHAPTER III METHODS AND MATERIALS

The relationship of a peer coach to the number of effective teaching behaviors used by inservice teachers in their classroom instruction in three urban junior high schools was investigated. In addition, the relationship of school level of administrative support to the inservice project to the differences in effective teaching behaviors between schools was analyzed.

The following questions were addressed:

1. Is there a relationship between the presence of a peer coach and the frequency of use of effective teaching behaviors taught and modeled in inservice workshops?

2. Does the level of administrative support for the inservice workshops relate to the frequency of classroom use of these effective behaviors?

In this chapter is a description of the inservice implementation and schedule. The method of sample selection and the demographics of the sample group are detailed. In the instrumentation section the modified Coker is described and interrater reliability discussed. The schedule for data collection, the design for

collecting, and the qualifications of the observers are also included and the inservice training given is described.

Study Design

This study was designed to investigate the relationship of peer coaching to teacher frequency of use of effective teaching behaviors as measured by 18 behavior descriptions taken from the research of Medley (1977) and Coker and Coker (1982). The data were recorded on the modified COKER.

In School A (full implementation) administrators and teachers committed to nine hours of training in effective teaching behaviors and the modeling of those behaviors, teacher expectation and student achievement, how to conduct peer observation, coaching, and training in the use of the modified COKER. School A participated in a series of workshops. They then chose peer partners, observed in each other's classes, and provided feedback following the observations on seven occasions.

The principal of School B (partial implementation) completed two hours of the above inservice. Thirty-seven of School B's teaching staff of 72 agreed to participate in the inservice. They viewed the film and videotapes of the nine hours of inservice during their planning periods. A guidance counselor was assigned to help promote the inservice. The videos were viewed over one month's time.

Thirty-seven teachers participated in the overall inservice, and six of this number did the peer coaching component which was taught by the researcher.

The faculty of School C decided not to participate at all in the inservice, but the principal agreed to allow the author to observe randomly selected classroom teachers as a comparison group. No teacher or administrator had any of inservice training, nor did any peer coaching occur. The observations were done during the same time frame as those at School B.

For the first study question the teachers were divided into four groups, those who did the peer coaching with high support (4), peer coaching with moderate support (3), no peer coaching with moderate support (2), and no training with no support (1). Nine teachers at School A and five teachers at School B participated in all inservice activities, including the peer coaching training. The remaining four teachers at School B did some training but no coaching. No teachers at School C did any training or coaching. The four teachers at School B participated in the inservice, but did not select a partner nor do the peer coaching observation and feedback sessions.

For the second study question concerning the relationship of administrative support to increased frequency of use of the behaviors, there were three

groups, one from each school. School A had full administrative support for the implementation of the inservice training. School B had partial administrative support for the inservice effort. School C did not participate at all in the inservice training.

The inservice training involved several components, of which peer coaching was the final element. Training in effective teaching behaviors and use of a low-inference observation instrument were elements of the training that were practiced during the peer coaching components. The inservice training was designed by Susan Wilkinson and this writer and offered to all schools in the district primarily for the purpose of improving the academic achievement by improving the teaching skills of teachers. Administrators in 71 schools agreed to participate and were scheduled to receive the training during the 1984-85 and 1985-86 school years. Observations were done before the inservice training and following the completion of all components of the training. The peer coaching component was designed and delivered by this writer to School B. The materials were used by other trainers in School A. Actual training and observations for School A occurred in the spring of 1985, for School B in the spring of 1986. Observations of School C also occurred in the spring of 1986.

School A had full administrative participation in the inservice. Administrators provided logistical help for the training and observation of teaching and encouraged teachers to participate. In School B (partial implementation) the inservice in teaching behaviors and low inference observation sessions were scheduled and teachers were allowed to choose to participate during their planning periods during school hours. In School C, the non-participation school, no inservice was planned and no teacher participation was required. The principal and teachers allowed the researcher to observe teachers on two separate occasions.

Study Sample

School A elected to participate fully in the inservice activities. School B elected to allow teachers to participate if they desired and at their convenience. School C elected not to participate at all. The three schools were selected for this study because they all were junior high schools and each had a different level of participation in the peer coaching component of the inservice activities. Treatment was not randomly assigned, but schools were selected by treatment. Seventy-one schools participated in the inservice program to some degree, and 70 schools did not participate at all. The inservice program was scheduled in shifts over a two-year period; School A participated in the first shift and

School B participated in the second shift. Among the 7 junior high schools that participated in the training, principals were polled for agreement to participate in the peer coaching.

Of the total population of 50 teachers who participated in School A, nine were chosen for the sample by use of a random number table applied to a non-alphabetic list of teacher names. In School B 37 teachers of a staff of 72 participated in the inservice program. Of the six teachers who did the peer coaching component as well as the other training components, five were drawn to provide a nearly equal balance of numbers of peer coached and non-peer coached teachers. The other four teachers in School B were selected from the remaining 31 inservice participants by use of a random number table applied to a non-alphabetic list of teacher names by subject area.

Teachers observed in School C were selected by use of a random number table applied to the teacher roster which listed names in alphabetic order.

Nine teachers from each school were selected by the means described above. The schools were three junior high school (grades 8 and 9) in a large urban school district in Florida. The schools were selected by their level of participation in the staff development program which emphasized increased use of selected teaching behaviors. Of the 27 teachers selected, 18 participated in the

inservice on teaching behaviors, and 14 of this 18 attended two extra sessions on peer coaching. The nine teachers from the third school had no training or coaching at all. The schools self-selected into this project and were further selected on the basis of level of inservice implementation. The teachers observed in each school were selected at random and the classroom observations were done randomly. All of the teachers knew the purpose of the overall inservice project, but none of the teachers was aware of a separate evaluation of the peer coaching component alone. Generalizations from the study will be made to the population of the schools in which the sample teachers worked. Characteristics of the teachers will also be compared to secondary teachers and all in the district.

Of the 27 teachers in the sample, nine were male, 18 were female (33%-66%); 20 were white, seven were black (74%-26%); three (11%) were between 21 and 30, 16 (59%) were between 31 and 45, and eight (30%) were above 45 years of age.

Instrumentation

The instrument used to observe classroom teachers during a class session was the modified COKER. The modified COKER isolates 18 teacher behaviors from the full COKER and is used as a tally sheet for each occurrence of those behaviors within one 10- minute observation period.

The behaviors selected were the effective behaviors that encourage student response and involve no correcting or reprimanding by the teacher. The teacher behaviors fall into the following sections: presenting, questions, responding, and personal regard. The student behaviors are paying attention to the teacher, responding, asking questions or making comments, and off-task behavior. The reverse side of the instrument lists 47 different items concerning teaching methods and supervision style, affect, and control. The modified COKER is different from the COKER (Coker & Coker, 1982) only in that it limits the total number of teacher and student behaviors and is a tally rather than single occurrence record of the 18 selected behaviors from the COKER. The COKER is an instrument designed by Homer and Joan Coker (Coker & Coker, 1982) from their research and from the review of process-product research by Medley (1977). The modified COKER was designed by Susan Wilkinson with the help and permission of the senior author of the COKER.

The scoring of the Modified COKER is done by clusters of items. The clusters are:

1. Student initiated verbal interactions--10 items of which "student makes a voluntary comment" is one.
2. Amplifies and discusses student responses--11 items of which "student asks substantive question" is one.

3. Time on task--22 items, for example, students actively listen to teacher explanation.

4. Prepares and/or uses a variety of teaching methods and techniques to present subject matter and encourage student time on task--10 items, focusing/cueing.

5. Promotes a positive self image for students--12 items, focused academic praise.

6. Consistent in treatment of students--nine items consistent wait time for all students.

7. Establishes rapport--eight items, listening to student questions and comments.

8. Uses positive teaching methods--nine items, asking students to amplify on their own ideas or someone else's.

9. Fosters group and individual participation in the teaching - learning process-18 items, open ended questions, focused academic praise, cueing.

10. Fosters love of learning--nine items, open ended questions, no wrong answer, allowing comments.

11. Fosters student control of his or her own learning--21 items, use of recall to application level questions, allows student comment, checks own perception of student ideas.

12. Accepts student ideas--eight items, uses student ideas, allows student to evaluate their own or other's ideas.

13. Challenges students to ask questions--six items, acceptance of probing or procedure questions.

14. Encourages critical thinking--eight items, uses several types of questioning techniques, several levels of questions, uses student ideas.

15. Accepts student thought--25 items, asks students to evaluate their own or other's ideas, asks no wrong answer questions.

16. Models good listening habits--four items, teacher pays attention to students, checks his or her own perceptions of student responses.

17. Gives feedback to students on their own performance--13 items, focused academic praise, giving three seconds wait time.

18. Used positive reinforcement--two items, correction of misinformation, and nonacceptance of misinformation from any source.

The observers were compared for agreement on the same sample lesson.

Data Collection

Two 10-minute observations were conducted for each teacher during a class period before inservice training began to obtain a baseline of teaching behaviors for each teacher. For School A, which was in the first session of the inservice, this occurred in February 1985. The peer coaching activities were completed by the first week of

May 1985 and two 10-minute posttraining observations took place during the last two weeks of May 1985. In School B pretraining observations took place in the first week of April, 1986. Peer coaching took place between early April and mid-May. Posttraining observations took place in the last week of May, 1986. In School C, postobservations took place in the last week of May, 1986.

Three observers collected all the data for the peer coaching project. Observers 1 and 2 collected all data at School A. Observer 3 collected all data from School B and School C. Observer 1 was a junior high school administrator. Observer 2 was a junior high school teacher. Observer 3 was a secondary school teacher. All three received a three-day training session in the use of the full COKER and a two-hour training session in the use of the modified COKER. After several hours of practice observations in the use of the instrument, either in classrooms or of videotapes of classrooms, the observers collected the project data independently. Interrater agreement was calculated at the end of the project in two ten minute observations of the same length of a junior high school English teacher at a nonparticipating school.

The senior developer of the COKER stated that the two 10-minute observations using this instrument would produce a reliability of a teacher's repertoire of teaching behaviors of .40 to .50. Sixty minutes of observation

would be expected to yield reliability scores of .70 to .80.

Inservice Training

The total training consisted of information to (a) increase teachers' awareness of the effects of teacher expectation, (b) promote teachers' feelings of efficacy, (c) learn about personality type and differences in learning style, (d) inform teachers of a limited number (18) of effective teaching behaviors, (e) model those behaviors, (f) cue the behaviors on the low inference observation instrument, and (g) practice the behaviors and give feedback in observation sessions with peer coaches.

The principal and two lead teachers in the School A received nine hours of training in January of 1985. The breakdown of training was: (a) one hour of information on teacher expectation and student achievement; (b) one hour training on the Myers-Briggs Type Indicator; (c) one half hour on school climate; and (d) six and one half hours on effective teaching behaviors, modeling behaviors, use of the low inference observation instrument, and how to conduct peer observations. These administrators provided their staff with this same instruction by the beginning of April, 1985. Teachers in School A received all the training together in a series of workshops. The workshops included a film on teacher expectation based on the work of Rosenthal and Jacobsen in Pygmalion in the classroom:

Teacher expectation and student intellectual development, a lecture on Myers-Briggs Type Indicator, a lecture on school climate, and a combination of a lecture and a training video about effective teaching behaviors and the coding of a low-inference observation instrument. They then chose peer coach partners and observed in each others' classes and provided feedback following the observations on seven occasions.

The principal of School B received two hours of the above inservice conducted by the principal author of the inservice program. Teachers involved with the inservice had videotapes of the entire nine hours of inservice and were encouraged to view them during their planning periods by a guidance counselor assigned to promote the inservice and coaching components. The training videos were viewed individually during planning periods over a month's time. No one was trained at School C. Those principals and teachers participating in the study and the treatment each group received are displayed in Tables 1, 2, and 3.

Internal Threats to Validity

The time between pretraining and posttraining observations was 8 to 12 weeks. No maturation effect was expected. No specific event external to the treatment was noted that might have had an effect on the teaching skills of teachers. The pretraining and posttraining

Table 1

Principal and Lead Teacher Training

	All Training	Partial Training	No Training
School A	X		
School B		X	
School C			X

Table 2

Teacher Training

	Nine hours lecture and film	Two to nine hours film and video	None
School A	X		
School B		X	
School C			X

Table 3

Treatment

	Pre- obs	Treatment 1 -inservice	Treatment 2-COKER and peer coaching	Post- obs
School A	X	X	X	X
School B	X	X	X (5 of 9)	X
School C	X			X

observations were made by outside observers. The teachers observed were trained in the use of the instrument after the preobservation. The behaviors were the focus of the inservice training. Any cue to the behaviors came from the inservice training, not the pretraining observation. The same instrument was used for pre and posttraining observations and the information collected was treated on the same tests. The observers were compared on the percentage of agreement while observing the same lessons.

Statistical regression due to subjects selected from extreme groups was not expected, but the sample was compared on race and gender to the population of secondary teachers and found to be a close match by percentage on race and gender. The school district does not keep information on age or education level above bachelor's degree on teachers that could be released publicly. A comparison on those characteristics could not be done. Experimental mortality was not an issue. The short time frame of the study and the relative stability of teachers during a contract year allowed observations to be done without loss of subjects. Absence of a subject on a observation day meant the observer returned at a later time. By a combination of chance and planning, internal validity threats were controlled to the extent described here.

External Threats to Validity

Representatives of the sample to the secondary and total district populations of teachers is seen in Table 7. The sample is a valid representation by race and gender of the secondary teachers of the district. No attempt was made to document demographic variables in interaction with treatment effects.

Peer coaching and administrative support were linked in the study design and thus would not be examined separately. Some overlap of the two was expected. Awareness of the experiment and the presence of an observer in the classroom could have an effect, but the random nature of the time and day of the observations should minimize the effect, because the use of a variety of the teaching behaviors required practice and planning in the lessons of the teachers. Pretraining observation should not have sensitized the teachers, who did not see or use the observation instrument until later. Interaction of history and treatment effects were not examined. Interaction of time of measurement and treatment effect was accounted for in two pretraining observations and two posttraining observations which were summed for each pair and taken as two single scores. Variation was expected and was interpreted as the range of teaching behaviors for each teacher.

CHAPTER IV RESULTS OF THE STUDY

The purpose of the study was to investigate the relationship of peer coaching to the transfer of inservice training as measured by the increased frequency of use of teaching behaviors presented during the inservice activity. The following questions were addressed:

1. Is the presence of a peer coach related to the increased frequency of use of effective instructional behaviors by inservice teachers at three junior high schools?

2. Is the level of administrative support related to the increased frequency of use of effective instructional behaviors by inservice teachers?

The results have been presented as follows: (a) the data analysis, (b) reliability of the instrument, (c) frequency information, (d) test of peer coaching, (e) test of administrator support, and (f) demographic comparison of the sample to the population.

Data Analysis

The tests used to study the observation instrument and the two study questions were selected because of the

nature of the information sought. Each is explained in the following sections.

Observation Instrument

The modified COKER was selected as the observation instrument because it was used as part of the inservice training; observers were available who were trained in the use of the modified COKER; the instrument is easy to use and focuses only on the behaviors of interest in the training. In order to be able to rely on the information found with the scoring keys on the instrument, the 18 behaviors were tested for internal consistency. These scoring keys were developed by the senior author of the instrument. Tallies from the instrument were keypunched. The statistical program SPSSX was used to conduct all of the tests.

Alpha coefficients were calculated for the multiple observers' ratings on each behavior using the Kuder Richardson 20 formula to determine if the modified COKER were a reliable instrument to measure the 18 behaviors under study. An alpha is equivalent to a reliability coefficient KR-20 (Kuder-Richardson 20). A criterion of .40 was determined by the senior author of the instrument to be the lower limit of satisfactory reliability for the scoring keys.

The percentage of agreement between and among the three observers in coding the observations was calculated,

because a difference in the coding of behaviors by the observers could explain differences in scores for the study questions. To eliminate coding inconsistencies as a threat to internal validity, an interrater agreement of .7 was required. Interrater agreement meant that the observers tallied the same behaviors during an observation of the same lesson. The total number of cells on which all observers agreed was divided by the average number of cells marked by all three observers during the observation.

Reliability of the Instrument

The reliability coefficients for each of the 18 behaviors are reported as alpha coefficients in Table 4. According to Coker, an alpha of .40 is an acceptable level of reliability for a low inference survey measure.

The alphas for the scoring keys for 10 of the 18 behaviors are .40 or above. An alpha for the scoring key for behavior 18 could not be determined because of absence of variance. The scoring key for behavior 18 had two cells, one of which had no variance. The scoring keys for the following behaviors result in reliable scores on the behaviors. These behaviors are

- 2 - amplifies and discusses student responses
- 3 - time on task
- 7 - establishes rapport

Table 4

Alpha Coefficients for Each Behavior

Behavior	Alpha
1	.03
2	.56*
3	.67*
4	.20
5	.34
6	.33
7	.52*
8	.58*
9	.70*
10	.05
11	.43*
12	.37
13	.45*
14	.66*
15	.77*
16	.25
17	.46*
18	^a

^aNo alpha can be determined. This scoring key had two items, one of which had no variance.

- 8 - uses positive teaching methods
- 9 - fosters group and individual participation in teaching
- 11 - accepts student ideas
- 13 - challenges students to ask questions
- 14 - encourages critical thinking
- 15 - accepts student thought
- 17 - gives feedback to students on their performance

Ten of 18 scoring keys met the criterion for reliability.

The interrater percentage of agreement was .75 among the three observers and was adequate. Observer 1 did not agree highly with observers 2 and 3 (see Table 5), but observers 2 and 3 had a high rate of agreement.

Population Characteristics

For the school district as a whole and secondary teachers as a subset, the pattern of race and gender are reported in Table 6. A comparison of the district total and secondary subset on race and gender compared to the study sample are reported in Table 7.

The teachers in the study sample matched the secondary teachers in the district exactly on gender, but varied 2% to 3% on race. The study sample did not closely resemble the district teacher population on gender but matched well on race for 1985. Since these characteristics do not relate directly to teaching skills, sample results were not generalized to the population.

Table 5

Percentage of Observer Agreement

	Percentage	Comparison to expert observation	
Observer 1 & Observer 2	.60	Obs. 1	.36
Observer 2 & Observer 3	.95	Obs. 2	.80
Observer 1 & Observer 3	.68	Obs. 3	.87
Observers 1 & 2 & 3	.75		

Table 6

Teacher Characteristics

	District		Secondary	
	1985	1986	1985	1986
Male	1,117	1,099	932	921
Female	4,137	4,246	1,865	1,895
Black	1,427	1,557	776	789
White	3,827	3,751	2,012	2,001
Hispanic	19	27	14	20
Asian/Pacific	8	9	5	6
Indian/Alaskan	0	1	0	0

Table 7

Comparison of Sample to District Teacher Population

	District	Secondary	Sample
Male-Female (1985)	21%-79%	33%-67%	
Male-Female (1986)	20%-80%	33%-67%	33%-67%
Black-White (1985)	26%-73%	28%-72%	
Black-White (1986)	29%-70%	28%-71%	26%-74%

Note. Totals for race do not always add up to 100% because of 1% total teacher population of Hispanics, Asian/Pacific Islanders, and Native Americans.

Sample and Group Means

The mean scores on each behavior for the entire group of teachers are presented in Table 8 for the pretraining observations and in Table 9 for the posttraining observations.

Table 8

Pretraining Means for the Sample

Behavior	Mean	Standard Deviation
1	1.6	1.39
2	1.4	1.82
3	6.9	4.52
4	1.1	1.37
5	-1.2	1.88
6	.9	1.22
7	.2	.56
8	1.0	1.73
9	.5	1.45
10	.6	.88
11	.1	1.49
12	1.6	1.90
13	1.9	1.38
14	.8	1.25
15	2.5	3.11
16	.5	.85
17	2.0	1.61
18	1.5	.58

Note. N=27

Table 9

Posttraining Means for the Sample

Behavior	Mean	Standard Deviation
1	1.5	1.81
2	2.4	3.39
3	12.5	7.93
4	.3	.56
5	-.6	1.93
6	.3	2.18
7	.2	.36
8	1.8	2.69
9	.2	1.17
10	.6	.93
11	.7	3.04
12	4.4	4.24
13	1.8	1.36
14	.6	1.28
15	5.0	4.30
16	.5	1.37
17	4.5	3.78
18	1.7	.47

Note. N=27

The pretraining group means show group 1 to be higher or equal to group 4 on 7 behaviors. In combination with significant increases in the use of these behaviors after training by group 4 in comparison to all groups, this evidence provides strong support for the combination of training, peer coaching, and high administrative support as factors in the behavior change. Means by group on both pretraining and posttraining observations are reported in Tables 10 and 11.

Presence of a Peer Coach with Administrative Support

An analysis of covariance was conducted initially, but covariates on only two behaviors (10, 13) were significantly related to the dependent variable. (Pooled within-group correlations are reported in Table 12.) Therefore, an analysis of variance was conducted on four groups of teachers: (a) those doing the peer coaching component in School A with high administrative support, (b) those doing the peer coaching component in School B with moderate administrative support; (c) those not doing the peer coaching component in School B; and (d) those doing no training at all in School C with no administrative support (Table 13).

An analysis of variance was conducted on the pretraining observation scores to determine if preexisting group differences existed for any of the 18 behaviors.

Table 10

Pretraining Group Means ($n_4 = 9$, $n_3 = 5$, $n_2 = 4$, $n_1 = 9$)

Behavior	Group							
	M	SD	M	SD	M	SD	M	SD
1	1.9	1.83	1.0	1.16	2.0	.71	1.4	1.33
2	.9	.78	1.3	1.50	1.6	1.14	2.0	2.83
3	6.3	3.94	8.8	2.06	8.6	5.51	5.7	5.34
4	.4	1.01	.5	1.00	1.2	1.64	2.0	1.32
5	-2.8	1.72	-.3	2.22	-.8	1.64	-.2	.97
6	.0	.87	1.5	.58	1.2	1.79	1.3	1.00
7	.2	.67	.5	1.00	.0	.00	.1	.33
8	.7	1.32	1.8	2.87	1.0	1.00	1.0	2.00
9	-.4	.88	1.0	1.63	1.6	3.30	.7	.71
10	.4	.53	.3	.50	.4	.55	1.1	1.27
11	-.2	1.20	-1.0	1.41	.4	1.82	.7	1.50
12	1.1	1.17	1.3	.96	1.4	1.44	2.4	2.88
13	2.2	1.64	3.3	1.71	2.0	.00	1.0	.71
14	.9	1.69	1.0	1.41	1.2	1.30	.3	.50
15	2.3	2.40	1.8	2.36	2.8	2.17	2.9	4.54
16	.1	.33	.3	.50	.4	.89	1.0	1.12
17	1.6	1.13	2.8	.96	2.8	1.92	1.6	1.94
18	1.8	.44	2.0	.00	1.8	.45	.9	.33

Table 11

Posttraining Group Means ($n_4 = 9$, $n_3 = 5$, $n_2 = 4$, $n_1 = 9$)

Behavior	Group							
	1		2		3		4	
	M	SD	M	SD	M	SD	M	SD
1	.9	1.54	1.3	1.50	1.4	2.19	2.3	1.94
2	.9	.93	1.0	1.16	.8	.84	5.6	4.39
3	5.9	3.14	10.8	5.38	10.2	3.77	21.1	6.23
4	.0	.00	.8	.96	.6	.55	.3	.50
5	-1.3	1.00	-.3	2.36	-2.0	2.45	.9	1.27
6	.0	.00	.3	.96	-.6	.55	1.2	3.67
7	.0	.00	.5	.58	.0	.00	.2	.44
8	.2	.67	1.5	3.00	.4	.55	4.3	2.87
9	-.3	.50	.5	1.00	.0	.71	.6	1.74
10	.1	.33	.5	1.00	.0	.00	1.4	1.01
11	.9	2.09	-1.8	1.26	1.0	1.41	1.4	4.50
12	1.0	1.12	3.8	2.75	2.6	1.95	9.2	3.31
13	1.3	.71	2.5	3.11	1.4	.89	2.2	.83
14	.4	1.42	.8	.96	.2	1.48	.9	1.27
15	2.1	1.36	5.3	2.22	4.4	2.61	8.2	5.63
16	.0	.00	.0	.00	.2	.45	1.3	2.18
17	2.3	1.58	2.8	2.50	3.0	1.58	8.2	4.06
18	1.7	.50	1.5	.58	1.8	.45	1.8	.44

Table 12

Pooled Within Group Correlations

Behavior	Correlation
1	.20
2	.18
3	-.04
4	-.01
5	.07
6	.39
7	-.28
8	-.16
9	.18
10	-.44*
11	-.23
12	.12
13	-.40*
14	.17
15	.29
16	-.27
17	-.26
18	-.02

*p < .05

Table 13

Group Differences in Treatment

	Group 1	Group 2	Group 3	Group 4
Training	0	X	X	X
Peer Coaching	0	0	X	X
Administrative Support	No	Partial	Partial	Full

The analysis of variance was appropriate because a comparison of all possible pairs of the teacher groups could be done. The assumption was that no difference existed between population means for the four groups. An analysis of variance was also conducted on the posttraining observation of the 18 behaviors; significant Fs were followed by pairwise comparisons conducted by using the Bonferroni procedure. This was done to determine among which pairs of the above-named groups significant posttraining differences in teaching behaviors occurred.

Pretraining Observations by Group

An ANOVA was conducted on the pretraining observations by group to determine if differences existed prior to training (see Table 14).

Table 14

ANOVA on the Pretraining Observation Behaviors by Group
 ($n_4 = 9$, $n_3 = 5$, $n_2 = 4$, $n_1 = 9$)

Behavior	SS	DF	MS	F ratio	Significance of F
1	3.19	3	1.06	.52	.67
2	5.83	3	1.94	.55	.65
3	44.72	3	14.91	.71	.56
4	12.64	3	4.22	2.69	.07
5	35.41	3	11.80	4.79	.01*
6	10.87	3	3.62	2.98	.05*
7	.63	3	.21	.65	.59
8	3.25	3	1.08	.33	.80
9	15.32	3	5.11	2.98	.05*
10	3.24	3	1.08	1.45	.25
11	9.10	3	3.03	1.43	.26
12	9.24	3	3.08	.83	.49
13	15.55	3	5.18	3.47	.03*
14	2.98	3	.99	.61	.62
15	4.30	3	1.43	.13	.94
16	3.90	3	1.30	2.02	.14
17	8.97	3	2.99	1.19	.34
18	5.50	3	1.83	12.99	.00*

*p < .05

There are significant pretraining differences on five behaviors by group (5, 6, 9, 13, 18). The differences were significant at the $p < .05$ level for three behaviors (6, 9, 13), at the $p < .01$ level for one behavior (5), and at the $p < .001$ level for one behavior (18). On none of the five behaviors is the mean for group 4 the highest mean. Indeed on two of the five behaviors (15 and 18) the mean for group 1 exceeds the mean for group 4.

Posttraining Observation by Group

An ANOVA was conducted on the posttraining observations by group to determine if there were a treatment effect and if it occurred on behaviors with preexisting group differences or not (see Table 15).

There are significant posttraining differences on eight behaviors (2, 3, 5, 8, 10, 12, 15, 17). The differences are significant at the .05 level for two (5, 15), at the .01 level for three (2, 8, 10), and at the .001 level for three (3, 12, 17). For all eight behaviors group 4 has the highest mean; on five of the variables the means for group 2 and 3 exceed the mean for group 1.

Comparison of Pairs by Groups

The ANOVA was followed by the Bonferroni procedure on the posttraining observation for four groups. Group 4 was nine teachers in School A, Group 3 was five teachers in School B. Both of these groups received the training and

Table 15

ANOVA on the Posttraining Observation Behaviors by Group
 ($n_4 = 9$, $n_3 = 5$, $n_2 = 4$, $n_1 = 9$)

Behavior	SS	DF	MS	F ratio	Significance of F
1	9.90	3	3.30	1.01	.40
2	130.76	3	43.59	5.97	.00**
3	1099.41	3	366.47	15.80	.00**
4	2.05	3	.68	2.64	.07
5	35.03	3	11.68	4.36	.01*
6	12.49	3	4.27	.86	.48
7	.85	3	.28	2.56	.08
8	90.32	3	30.11	7.08	.00**
9	4.19	3	1.40	1.03	.40
10	10.41	3	3.47	6.59	.00**
11	29.77	3	9.92	1.09	.37
12	331.16	3	110.39	18.74	.00***
13	6.32	3	2.11	1.16	.35
14	1.86	3	.62	.35	.79
15	170.57	3	56.86	4.21	.02*
16	9.94	3	3.31	1.96	.15
17	190.44	3	63.48	8.10	.00***
18	.27	3	.09	.39	.76

$p < .05$

did peer coaching. Group 2 was four teachers in School B; Group 1 was nine teachers in School C. Group 2 received the inservice training and Group 1 did not. Neither group did peer coaching. (See Table 16.)

Group 1 Compared to All Others

Group 1 comprised nine teachers in School C who received no training, did no peer coaching, and had no administrative support for improving their teaching behaviors with the training. Group 1 was significantly different from Group 4 on seven behaviors (2, 3, 8, 10, 12, 15, 17). The mean scores for Group 1 were significantly lower for seven behaviors than those of Group 4. Since Group 4 had extensive treatment intervention and practice in peer coaching with high administrative support for the training activity, this difference was the anticipated outcome. Further, since preexisting group differences existed for none of these behaviors, it can be assumed that there was a treatment effect for these behaviors (2, 3, 8, 10, 12, 15, 17). That treatment consisted of training, peer coaching, and high administrative support. Group 1 was also significantly different from Group 2 and Group 3 on no behavior.

Group 2 in Comparison with Groups 3 and 4

Group 2 was significantly different from Group 3 on no behavior. Group 2 differed from Group 4 on three

Table 16

Pairwise Comparisons Using Bonferroni t Test
 ($n_4 = 9$, $n_3 = 5$, $n_2 = 4$, $n_1 = 9$)

Behavior	Group			
	1	2	3	4
1	.9	1.3	1.4	2.3
2	.9 ^a	1.0	.8 ^a	5.6 ^b
3	5.9 ^a	10.8 ^a	10.2 ^a	21.1 ^b
4	.0	.6	.6	.3
5	-1.3	-.3	-2.0 ^a	21.1 ^b
6	.0	.3	-.6	1.2
7	.0	.5	.0	.2
8	.2 ^a	1.5	.4 ^a	4.3 ^b
9	-.3	.5	.0	.6
10	.1 ^a	.5	.0 ^a	1.4 ^b
11	.9	-1.8	1.0	1.4
12	1.0 ^a	3.75 ^a	2.6 ^a	9.2 ^b
13	1.3	2.5	1.4	2.2
14	.4	.8	.2	.9
15	2.1 ^a	5.3	4.4	8.2 ^b
16	.0	.0	.2	1.3
17	2.3 ^a	2.8 ^a	3.0 ^a	8.2 ^b
18	1.7	1.5	1.8	1.8

Note. (1) Negative means are possible because several scoring keys require the absence of certain cells. If those cells were present, a negative sign was given. (2) In each row, means with different superscripts are significantly different.

behaviors (3, 12, 17). The two groups differed on peer coaching (Group 2 did not do this component of training, Group 4 did) and degree of administrative support. Group 2 had moderate support for the training; Group 4 had high administrative support. The combination of peer coaching and high administrative support as the treatment for Group 4 resulted in significant increases in use of three of 18 behaviors taught in the training activity. One facet of this comparison warrants a caution, however. Group 2 consisted of only four teachers, and Group 4 consisted of nine teachers. The low sample size may again be a consideration.

Group 3 in Comparison to Group 4

Group 3 differed significantly from Group 4 on seven behaviors (2, 3, 5, 8, 10, 12, 17). Teachers in Group 4 used these behaviors significantly more often than those in Group 3. These two groups differed only on degree of administrative support. Group 4 had high support; Group 3 had moderate support. The distinction in treatment between groups shows strong results for the level of administrative support as a factor in teacher behavior change for seven of 18 behaviors. Administrative support alone discriminates groups on more behaviors than any other single characteristic.

Summary of the Results

The results of the study are reported in the following sections.

Demographics

The teacher sample may be representative of the schools in the study by nature of the random selection of subjects, but may not be representative of the secondary teacher population or of all district teachers on characteristics of instruction.

Instrument Reliability

Of the 18 scoring keys for the modified COKER, 10 keys were reliable. Those 10 gave a consistent measure of frequency of use for behaviors 2, 3, 7, 8, 9, 11, 13, 14, 15, and 17. Lack of reliability on the remaining behaviors is reported here, but the sensitivity of the instrument as a whole to differences in behaviors for teachers allowed confidence in the instrument as an information collection device.

Treatment Effect of Individual Factors

The relationship of peer coaching alone as an element in increased frequency of use of effective behaviors is seen in the comparison of Groups 2 and 3. There was no significant difference between these groups. As an isolated element, this study does not find peer coaching to be a factor in increased frequency of use of effective teaching behaviors. But additional study of Groups 2 and

3 finds Group 2 scores on all behaviors but three to be higher than Group 3. A further problem with Groups 2 and 3 was sample size ($n_3 = 5$, $n_2 = 4$). There may well have been too few teachers with too few tallies in the scoring cells for the behaviors. Results of the study isolating peer coaching from all other factors are not conclusive.

The relationship of degree of administrative support as the only factor discriminating between groups is found in comparisons of Groups 3 and 4. Group 4 was significantly different from Group 3 on seven behaviors (2, 3, 5, 8, 10, 12, and 17). Group 4 had high administrative support. Group 3 had moderate administrative support. This is strong evidence for high administrative support as a factor in behavior change in teachers.

Training alone as a factor in the increased use of effective teaching behaviors is seen in the comparison of Groups 1 and 2. Group 2 with training showed no significantly higher use of any behaviors. Given that Group 2 had only four members, training alone seems not to be a factor for behavior change.

In isolation only one element of this study, administrative support, showed relationships to more frequent use of effective teaching behaviors. Peer coaching did not.

Peer coaching with high administrative support is significantly different for Group 1 and 4. This is substantial support for high administrative support of training alone and also substantial support for the strategy of peer coaching paired with high administrative support.

CHAPTER V

SUMMARY

The relationship of a peer coach to the number of effective teaching behaviors used by inservice teachers in classroom instruction was the focus of the study. The relationship of three levels of administrative support to the number of effective teaching behaviors used by classroom teachers was a second study question.

Reports of peer coaching reveal anecdotal support for the peer coach as an element in teacher change. Few writers report research studies of teacher behaviors related to peer coaching. This study is an attempt to provide additional support for a strategy to improve the teaching behavior of inservice teachers. Information learned in inservice workshops is often not implemented in classroom because modeling and practice of the inservice techniques is difficult for a working teacher to do alone.

Adult learners need to know that what they learn will be of use to them. Teachers in particular need to know that what they learn will help their students learn (Guskey, 1985; Knowles, 1984). Peer coaching with

modeling and practice of new behaviors can provide a trial and error means of practice without formal evaluation (Baker, 1983; Joyce & Showers, 1982; Sparks, 1986).

Administrative support for continued learning on the job was found to be critical to success (Little, 1982). Garmston (1987) studied administrative support for coaching. Five of 12 school norms were affected by Garmston's technical, collegial, or challenge coaching. Holly and Blackman (1988) and Harris (1989) urge that inservice education consist of professional growth not remedial education for unsatisfactory teachers.

Control of one's learning and practice in the use of teaching strategies are reasons to support peer coaching for instructional improvement. Focusing and cueing of the behaviors to be practiced and training in the use of a low inference observation instrument are also elements of inservice training incorporated into this project.

The need for the study rests on practical ground. Peer coaching with a high level of administrative support allows on-the-job training selected by the learners and practiced at their pleasure within a structure that results in teacher behavior change.

The teacher sample was selected from three schools involved in a district-wide inservice training. School A had full administrative support for the training. School B had partial administrative support and School C did not

take part in the training. All teachers in School A received training in effective teaching behaviors, use of a low inference observation instrument, and peer coaching. Thirty-two teachers in School B received portions of the training and five did the peer coaching, as well. School C was observed only. No training occurred. Nine teachers in each school were observed before training and after the completion of all training and peer coaching. Fourteen teachers did the peer coaching and 13 did not.

Four groups were studied. These were: Group 1--no training, no peer coaching, no administrative support for the training activity; Group 2--training, no peer coaching, moderate administrative support; Group 3--training, peer coaching, moderate administrative support; and Group 4--training, peer coaching, high administrative support. Group 1 consisted of nine teachers from School C, Group 2 of four teachers from School B, Group 3 of five teachers from School B, and Group 4 of nine teachers from School A.

An analysis of covariance was conducted. Only two covariates were related to the dependent variables (10, 13), therefore, a posttest only design was followed. An analysis of variance was conducted on the posttraining observations, followed by a Bonferroni procedure to determine which pairs among the four groups showed significant differences. Comparison groups had to reach a

significance level of $p < .0083$. A pooled within group correlation was also conducted to determine if those who did well on the pretraining observation also did well on the posttraining observation. Overall, this did not occur. On only two behaviors (10, 13) did teachers do well on both pre and post observations.

Results of the ANOVA and Bonferroni procedures included significant group differences on seven behaviors. Group 1 differed from Group 4 on behaviors 2, 3, 8, 10, 12, 15, and 17. Group 2 and 3 differ on no behaviors. On 15 of 18 behaviors Group 2 had higher mean scores than Group 3. Group 3 differed from Group 4 on seven behaviors (2, 3, 5, 8, 10, 12, and 17). Six of these are the same behaviors significantly different for Groups 1 and 4. Behavior 5 is the only variable on which preexisting group differences occurred. In all cases of differences, Group 4 teachers showed significantly higher use of effective teaching behaviors than Groups 1 and 3.

For the contrasts of Group 1 and 4, the study strategy of peer coaching in conjunction with the training and high administrative support had a treatment effect. For the contrast of Groups 3 and 4, one element, the level of administrative support was the only difference in the groups. High administrative support seems a strong factor in the increased frequency of the effective teaching behaviors. Peer coaching as a single element cannot be

shown as a factor in the increased use of effective teaching behaviors. However, in conjunction with inservice training and high administrative support, peer coaching is related to the increase in eight behaviors in paired comparisons (behaviors 2, 3, 5, 8, 10, 12, 15, 17).

Limitations of the study include overlap of the peer coaching and administrative support questions. Small sample size for Groups 2 and 3 may have contributed to a lack of significance on peer coaching as a single element in change. Random selection of teacher subjects was not possible. Schools elected to participate in training. Teachers from within groups participating in training were selected in Schools A and B. Motivation to change was particularly noticeable in School A where the entire faculty participated in the training activity.

The following teaching behaviors were those for which significant increases were found for the groups listed:

Behavior 2: Amplifies and discusses student responses

(Groups 1 v 4, 3 v 4)

Behavior 3: Students are involved--time on task

(Groups 1 v 4, 2 v 4, 3 v 4)

Behavior 5: Promotes positive self-image in students

(Groups 3 v 4)

Behavior 8: Exhibits overall positive approach

(Groups 1 v 4, 3 v 4)

Behavior 10: Nurtures creativity and discovery
(Groups 1 v 4, 3 v 4)

Behavior 12: Seeks, accepts, and uses student ideas
as part of teaching procedures
(Groups 1 v 4, 3 v 4)

Behavior 15: Accepts varied student viewpoints
and/or asks students to extend or
elaborate answers or ideas
(Groups 1 v 4)

Behavior 17: Provides feedback to learners on their
cognitive performance
(Groups 1 v 4, 2 v 4, 3 v 4)

Behaviors 2, 12, and 15 seem to be related in terms of teaching behavior, as do behaviors 5 and 8. However, the instrument cells used to code these behaviors do not overlap at all. The behaviors are separate teaching strategies.

Conclusions

In summary, the first study question addressing peer coaching as a single factor in the increased use of effective teaching behaviors does not find support from the data in this study. As a factor with inservice training and high administrative support, peer coaching had strong support as a teacher change strategy from the data in this study. This conclusion seems logical, in that the logistics required to allow peer coaching in a

school involve training and administrative help to arrange conference, observation, and feedback time, much of which must happen during the time classes are in session. Teachers may decide to participate, learn, and practice new behaviors, but only the administration can authorize teachers to observe other teachers and provide for classes to be covered during those times. Peer coaching cannot be done without extensive in-school arrangements by administrators. In the study, Groups 2 and 3 differed only on peer coaching. But sample size ($n_3 = 5$, $n_2 = 4$) and only partial support by administrators may have contributed to the lack of significant difference between groups.

For the second study question regarding the relationship of high administrative support to the increased frequency of effective teaching behaviors, the data clearly support high administrative support as the single element in differences on seven behaviors between Groups 3 and 4, which differed only on level of support. Moderate administrative support seems to play little or no role in differences among Groups 1 v 2 and 1 v 3. Only at a high level of administrative support do differences occur in the direction expected (Group 4 paired with all others). The commitment of administrators to learn, train, and facilitate change within School A in this study produced significant change in the behavior of teachers.

As a single factor for change, high administrative support offers promise for schools seeking improvement in instruction.

The combination of inservice training, peer coaching, and high administrative support offers the same promise of help in instructional change. Since this combination of factors and high administrative support were factors for groups showing change on six of seven of the same behaviors, the overlap of peer coaching and high administrative support is shown for this study.

The purpose of this study was to seek information about peer coaching and high administrative support as part of a training strategy to increase the number of effective teaching behaviors used. The behaviors taught were a selection of the behaviors identified by Coker and Coker (1982) and Medley (1977) that were positive in approach. If student achievement change can be related to teacher behavior change, that is the use of more effective teaching behaviors, teacher training programs can verify their effect on instruction and schools can plan direct intervention to improve student learning. This study can provide support for teacher training and behavior change. Further study may be able to link increased teacher use of effective behaviors to student achievement gains. Glatthorn (1987) did report such a connection in a study of peer coaching and student achievement. Validation of

inservice training programs and improvement in student achievement are each worthy goals of school improvement.

Recommendations

With respect to the results of the study and recognizing the limitations of the design, the following recommendations are made.

1. Conduct research to determine a relationship between peer coaching and increased use of effective teaching behaviors among truly random samples of teachers at all levels of instruction.
2. Conduct research designed to separate peer coaching and administrative support to give fuller support to each as a strategy related to teacher behavior change.
3. Conduct research on peer coaching related to teacher behavior change followed by a test of student achievement of those teachers showing change.
4. Conduct research on context factors of the classroom, subject area, learner experience, teacher characteristics, and the relationship of these elements to teacher behavior change and student achievement.

APPENDIX A

A MODIFIED CLASSROOM OBSERVATION KEYED
FOR EFFECTIVENESS RESEARCH

MODIFIED
CLASSROOM OBSERVATIONS KEYED FOR EFFECTIVENESS RESEARCH*

(KEY)

SCHOOL	TEACHER	CLASS	DATE	RECORDS/GRADE	WELL
DATE	NO.	NO.	NO.	NO.	NO.
1	2	3	4	5	6
7	8	9	10		

SUBJECT	CODES
	01 - Math
	02 - Lang. Arts
	03 - Science
	04 - Soc. Stu.

SUBJECT		CODES	1. Passive compliance	2. Active compliance	3. Answers quest. voluntarily	4. Answers quest. directed to him	5. Substantive question	6. Procedural question	7. Volunteers comment	8. Off-Task Questions or comments	9. Individual OR Task OR Non V	10. Disruptive OR Task OR Non V
01 - Math												
02 - Lang. Arts												
03 - Science												
04 - Soc. Stu.												

PRESENTING	11. Explains, discusses, tells	V41	11	12	13	14	15	16	17	18	19	20
	12. Praises	V61	21	22	23	24	25	26	27	28	29	30
QUESTIONING	13. Open-ended/No wrong answer	V71	31	32	33	34	35	36	37	38	39	40
	14. Recall/cote/information	V81	41	42	43	44	45	46	47	48	49	50
	14a Use or application	V91	51	52	53	54	55	56	57	58	59	60
	15. Ampli/Eval/Elaborate-Students own idea	V1Q1	61	62	63	64	65	66	67	68	69	70
	16. Ampli/Eval/Elaborate-Other Students' idea	V111	71	72	73	74	75	76	77	78	79	80
	17. Status	V121	81	82	83	84	85	86	87	88	89	90
	18. Praises with explanation	V131	91	92	93	94	95	96	97	98	99	100
	19. Accepts-neutral/checks own perception	V171	101	102	103	104	105	106	107	108	109	110
RESPONDING	20. Uses extends	V181	111	112	113	114	115	116	117	118	119	120
	21. Waits (cool)	V191	121	122	123	124	125	126	127	128	129	130
	22. Focusing/Cueing	201	131	132	133	134	135	136	137	138	139	140
	23. Repairs after feedback	221	141	142	143	144	145	146	147	148	149	150
	24. Listens/Observes/Pays attention	231	151	152	153	154	155	156	157	158	159	160
	25. Tells, gives info	151	161	162	163	164	165	166	167	168	169	170
	26. Proximity		171	172	173	174	175	176	177	178	179	180
RESOLVING ALSO	27. Accepting Feelings		181	182	183	184	185	186	187	188	189	190

Code: 1=not done

- 1 - was not done
- 2 - not done
- 3 - not done
- 4 - not done
- 5 - not done

191 192

271 275

28. EQUAL RESPONSE OPPORTUNITY

TEACHER

Methodology			Affect	Nonverbal	Control		
324	Student	193	<input type="radio"/> 91. Discourages	205	<input type="radio"/> 105. Warm, congenial	340	
325	Expression	194	<input type="radio"/> 92. Encourages	206	<input type="radio"/> 107. Nods, smiles	216	342
				207	<input type="radio"/> 109. Tou/Pat/Hug	217	344
326	Student	195	<input type="radio"/> 93. Prevents	208	<input type="radio"/> 111. Praise	218	346
327	Perplexity	196	<input type="radio"/> 94. Fosters	209	<input type="radio"/> 113. Eye contact	219	348
				210	<input type="radio"/> 115. Ignores	220	350
328	Mis-	197	<input type="radio"/> 95. Accepts	211	<input type="radio"/> 117. Gesture/Sig'l/Rsp	221	352
329	information	198	<input type="radio"/> 96. Corrects	212	<input type="radio"/> 119. Shakes head/smm	222	354
				213	<input type="radio"/> 121. Takes something	223	356
330		199	<input type="radio"/> 97. Inductive	214	<input type="radio"/> 123. Glares, frowns	224	358
331		200	<input type="radio"/> 98. Deductive	215	<input type="radio"/> 125. Holds, pushes	225	
332	Strategy	201	<input type="radio"/> 99. Transductive				
333		202	<input type="radio"/> 100. Expository				
334	Cognitive	203	<input type="radio"/> 101. Simple				
335	Level	204	<input type="radio"/> 102. Complex				

Verbal			
226	<input type="radio"/> 127. Praise, non-sub	<input type="radio"/> 128	360
227	<input type="radio"/> 129. Agrees, supports	<input type="radio"/> 130	362
228	<input type="radio"/> 131. Pos ind attn	<input type="radio"/> 132	364
229	<input type="radio"/> 133. Reminds	<input type="radio"/> 134	366
230	<input type="radio"/> 135. Says stop	<input type="radio"/> 136	368
231	<input type="radio"/> 137. Firm/sharp	<input type="radio"/> 138	370
232	<input type="radio"/> 139. Sco/warns/pun	<input type="radio"/> 140	372

Comments

*This instrument has been modified from Classroom Observations Keyed for Effectiveness Research (COKER) solely for use with the MAKE A DIFFERENCE project and with permission of Dr. Homer Coker.

For information regarding COKER please contact Dr. Homer Coker, School of Education, Georgia State University, Atlanta, Georgia.

APPENDIX B

KEYS FOR SCORING THE MODIFIED COKER

KEYS FOR FLORIDA PROJECT

1. STUDENTS' INITIATE VERBAL INTERACTION
cells present: 77, 87, 97, 127, 137, 177, 187,
197, 227, 325
cells absent: 324
2. TEACHER AMPLIFIES AND DISCUSSES STUDENT RESPONSES
cells present: 103, 104, 105, 107, 113, 114,
115, 117, 183, 184, 185
3. STUDENTS ARE INVOLVED (TIME ON TASK)
cells present: 42, 44, 45, 73, 75, 84, 85, 93,
94, 95, 105 115, 123, 124, 125, 173, 174, 175,
193, 194, 195
4. PREPARES AND/OR USES VARIOUS METHODS AND TECHNIQUES
TO PRESENT SUBJECT MATTER AND ENCOURAGES STUDENT
PARTICIPATION
cells present: 64, 127, 128, 129, 130, 131,
136, 228, 232, 233
5. PROMOTES POSITIVE SELF-IMAGE IN STUDENTS
cells present: 133, 224, 229
cells absent: 47, 48, 61, 71, 72, 95, 96, 119,
120
6. IS CONSISTENT AND EMPATHETIC IN THE TREATMENT OF
STUDENTS
cells present: 42, 66, 38, 90, 112, 114, 138,
191
cells absent: 193
7. PRACTICES GOOD HUMAN RELATIONS
cells present: 127, 130, 131, 225, 226, 231
cells absent: 239, 240
8. EXHIBITS OVERALL POSITIVE APPROACH
cells present: 76, 79, 85, 100, 103, 109, 124,
222, 225
9. STIMULATES GROUP DISCUSSION AND INDIVIDUAL
PARTICIPATION
cells present: 42, 127, 128, 129, 130, 131,
132, 139, 140, 210, 217, 233
cells absent: 182, 183, 184, 185, 186, 227
10. NURTURES CREATIVITY AND DISCOVERY
cells present: 69, 78, 87, 118, 119, 120, 121,
122
cells absent: 267

11. HELPS LEARNERS DEVELOP POSITIVE ATTITUDE TOWARD SELF,
ENCOURAGES CONFIDENCE AND SELF-RESPECT
cells present: 84, 100, 102, 229
cells absent: 200, 201, 202, 203, 204, 207,
222, 224, 225, 227, 228, 236, 238, 239
12. SEEKS, ACCEPTS, AND USES STUDENT IDEAS AS PART OF
TEACHING PROCEDURES
cells present: 65, 66, 74, 83, 132, 229
cells absent: 234
13. MOTIVATES STUDENTS TO ASK QUESTIONS
cells present: 65, 66, 76, 85, 135, 325
14. USES QUESTIONS THAT LEAD STUDENTS TO ANALYZE,
SYNTHESIZE AND THINK CRITICALLY
cells present: 105, 115, 125, 327, 329, 335
cells absent: 324, 326
15. ACCEPTS VARIED STUDENT VIEWPOINTS AND/OR ASKS
STUDENTS TO EXTEND OR ELABORATE ANSWERS OR IDEAS
cells present: 71, 72, 73, 74, 75, 101, 102,
103, 104, 105, 107, 111, 112, 113, 114, 115,
117, 127, 175, 177, 182, 183, 184, 185, 187
16. DEMONSTRATES PROPER LISTENING SKILLS
cells present: 232, 235, 236, 237
17. PROVIDES FEEDBACK TO LEARNERS ON THEIR COGNITIVE
PERFORMANCE
cells present: 133, 134, 155, 171, 172, 173,
174, 191, 192, 193, 194, 195, 197
18. USES POSITIVE REINFORCEMENT PATTERNS WITH STUDENTS
cells present: 329
cells absent: 328

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BIOGRAPHICAL SKETCH

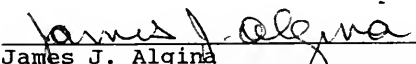
Hollace Hamaker Craven was born in Norfolk, Virginia, on October 14, 1946. She graduated from Carlisle Senior High School in Carlisle, Pennsylvania, in 1964. She earned a Bachelor of Arts degree in 1968 and a Masters of Arts degree in 1970, from Florida State University of Tallahassee, Florida. Two and a half years of her undergraduate and graduate study were spent in West Germany.

Her professional experience includes 15 years in Duval County Public Schools as a classroom teacher in two secondary schools. She also served as coordinator of bilingual education and ESOL, as specialist in the development of an academic magnet school, as a curriculum specialist in secondary special education, and as resource teacher for foreign languages. She also worked for two years in York County, Virginia, as a foreign language specialist and as Director of Program Development. She is currently the Director of Development for Episcopal Child Day Care Centers, Inc., a non-profit organization that provides subsidized day care for preschool children of low income families.

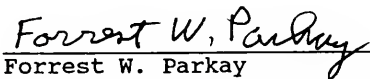
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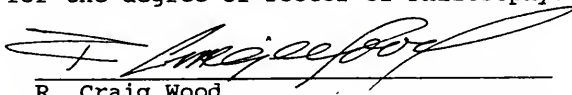
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R. Craig Wood
Professor of Educational Leadership

This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December 1989

David E. Smell
Dean, College of Education

Dean, Graduate School

UNIVERSITY OF FLORIDA



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